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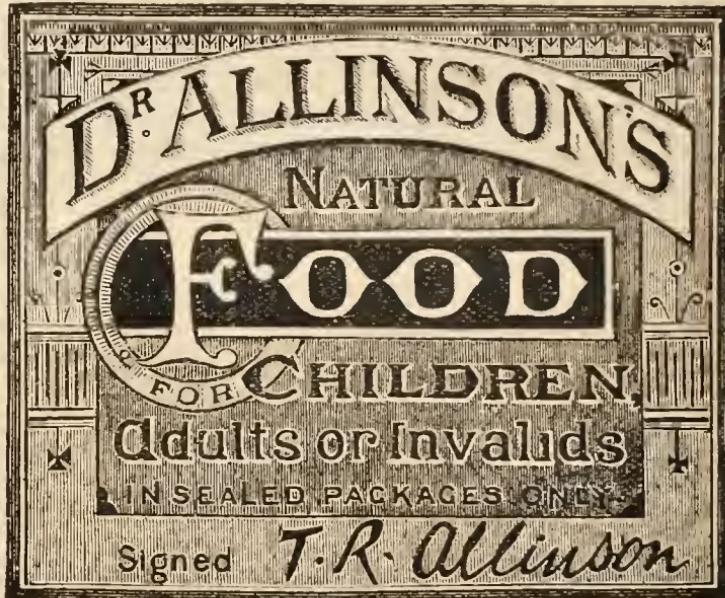
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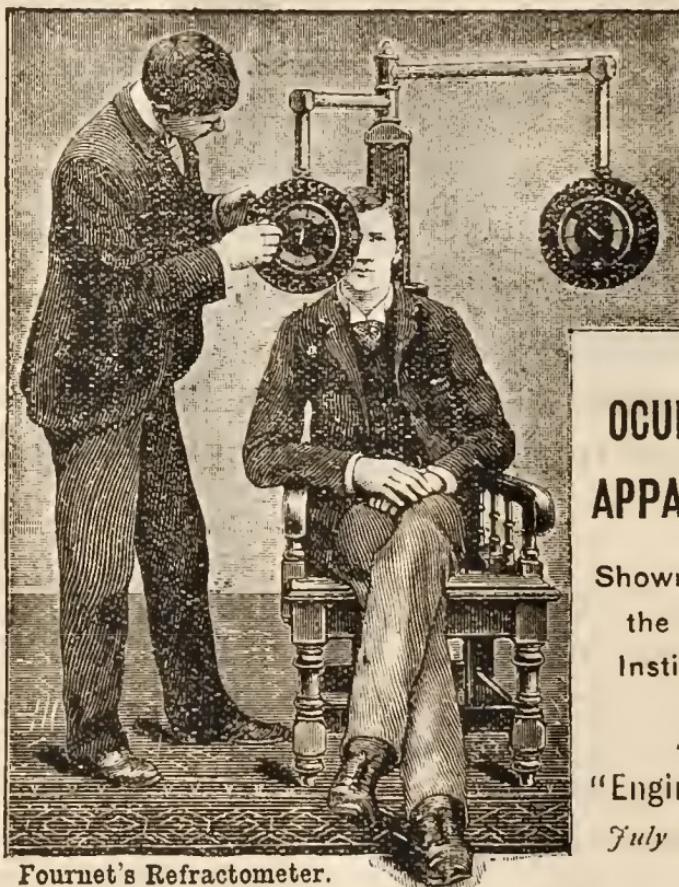
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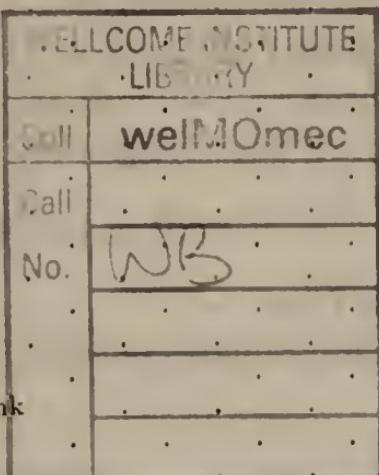
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PREFACE.

These articles were first printed in the *Weekly Times and Echo*, and having re-written them, I now offer them in book form. They teach a great deal of useful knowledge which I think everyone ought to learn. They are also the beginning, I hope, of a School of Healing that will take the place of Allopathy and Homeopathy. Time and further knowledge will shew that this way of Healing is the only one. These Essays carry on my book on "Hygienic Medicine, or, the only Rational Way of Treating Disease." In this work I take up the curing of ailments; in "Hygienic Medicine" I shew why I think drug treatment a blunder. In this work I also try to teach the laws of Life and Health, for if people will obey these laws they will have little need of doctors. "The health of the people is the first law," and it is to show how this health may be gained that I have written these Essays. More I need not say, save that those who read the book will do well if they bring into their daily life the knowledge that they may get from its reading.

T. R. ALLINSON, L.R.C.P., etc.

4, Spanish Place,
Manchester Square, London, W.

MANAGEMENT OF INFANCY.

INFORMATION on the subject of infancy is of the utmost importance. We may judge of the value of knowledge on this subject when statistics show that half the children born alive never reach the age of five years. That a great many of these premature deaths are avoidable may be judged from the fact that in some country districts there have been no deaths of children for many years. Before plunging into the subject a few words on the parents may not be out of place. In the "physical millennium" none but healthy persons will be allowed to have children, and unhealthy persons who bring sickly children into the world will be rightly punished, as such children are no use to the State, but rather a burden. If this were the case now we should have a finer race and stronger children, with fewer deaths in infancy. As it is, cripples, delicate, or diseased persons may breed, and no one can stop them. This may result in delicate or deformed children, or children with not enough vitality in them to last many years. These consume our food, increase our death rate, and are no benefit to society at large. We take greater care of our animals than we do of our own kind, we let our animals come to maturity before we breed from them, and then we choose the best sires we can get. But among human beings everything is left to chance or fortune. If a person could choose his parents then I should say the father ought to be about twenty-five or more, and the mother twenty-two or three. This would make the parents equal in stamina, as a woman at twenty-two is equal to a man at twenty-five. I would not allow old men to marry young girls, nor would I allow people to marry too young, as both these conditions do not allow of good and physically strong offspring. Next, the parents should live hygienically, especially the mother, as on her depends in a great measure the vitality of the child.

During the whole time a woman is pregnant she should live a regular life, eat plain food, as nearly vegetarian as possible, exercise daily, breathe pure air always, and keep her skin in good condition. By doing these things she improves her health and increases the strength of her offspring. I must warn mothers not to take castor oil or any other purgative during pregnancy; if they do so they may cause premature birth, cross births, or some other mishaps injurious to themselves and their children.

When a child is born the first thing to do is to wrap it up in a piece of flannel until the mother is made comfortable. Then the child should be washed in warm water with some very bland soap, dried carefully, and not clothed, as children are usually, in all kinds of wraps and constraints, but in some simple things which allow of perfect freedom of the limbs, without tightness anywhere. The custom of putting bands round babies and dressing them up in costly clothes is a sop thrown to the goddess fashion, and is positively injurious. In dressing a baby I need scarcely remark that all fastenings should be made with safety pins, or else with a needle and thread. If ordinary pins are used, and one runs into baby it may cry out very loudly and the cause of the outcry be unsuspected. New-born children should not be exposed to a bright light for some few days, or the eyes may be injured. There is much ignorance with regard to the food baby should be given until the mother's milk comes. The common plan of giving gruel, butter and sugar, sugar and water, &c., is bad. The natural plan is to put baby to its mother's breast a few hours after birth. By so doing blood is drawn to the bosoms and the secretion of milk soon increases. Baby may not get much at first, but milk soon appears. This plan is beneficial to both mother and child. It prevents many troubles to the mother. The first milk is always rich in fat, and when baby draws this into its stomach it acts as a natural purgative and moves the bowels. The navel string may be wrapped in any fine material; it then dries up, and should drop off about the fourth day. If there is a tendency to rupture at the navel, a penny or a round piece of sheet lead may be sewn into a small band and applied over it. If the mother will take wheatmeal gruel and brown bread, with fruits and vege-

tables after baby's birth for her food, she will require no purgatives on the third or any other day. I write thus plainly because when in general practice I saw much ill-health and suffering result from ignorance of such things. The less medicines at these as at other times the better.

All mothers should suckle their children if possible. The reason is that the mother's milk is most natural for her baby, and as baby grows, the milk of the mother gradually changes, and so the baby goes through natural stages in the proper order. For example, it would not be wise to give a baby of one month old the breast of a woman who has a child six or nine months of age ; but when a child is fed artificially, the milk the child of a month old gets may be from a cow that calved nine months before, and so on. Then again, cow's milk differs from mother's milk, being richer in flesh-forming materials. These and other reasons explain the great mortality among children. A mother who does not suckle her children is liable in after life to more diseases than the one who suckles hers, these diseases being plethoric or cancerous in nature. Another fact that must not be forgotten is that milk is not digested within three hours. This would remind us not to feed our babies too often. Whenever a baby possets or throws back its food, we may be sure that too much has been taken, and less must be given. When a baby is given the breast it knows how much to take, and stops when it feels satisfied. Not so with artificial food, which may be made sweet, and so baby takes more than is good for it. The results of over feeding are fretfulness, crossness, irritability, sleeplessness, and other symptoms which are characteristic of a so-called bad-tempered child. If full grown persons were fed too often, no matter however simple the food, they would soon be bad tempered, and their wives would vote them not fit to live with, yet we overfeed our babies and then expect them to be models of goodness. For the future, any woman who reads these articles and yet has a cross-tempered child, must not blame baby for having a bad temper, but herself for feeding it wrongly. With proper care and attention children can be made into little models of contentment and goodness, but certain rules must be complied with. With regard to food, a new-born baby may be given the breast not oftener than every three hours;

this may be continued until the child is about three months old. This feeding has not to be done with the regularity of clockwork, for baby may be asleep when its three hours are up ; then it would be advisable to let it sleep on, feed it soon after it awakes, and no more food for another three hours from this. During the night baby *may* have the breast once or twice for the first three months. After the child is three months old the time between meals must be four hours, and then the night feeding must be cut down to once only. When mothers have to suckle their babies in the night they should always sit up in bed, and feed the baby, then when it is satisfied it should be put by her side again or in a cot by the bed. The practice of lying on one side and giving the baby the bosom in that position is one fraught with danger to the child. There is such a thing as overlying. The poor mother is tired, she lies on her side, puts baby to her breast, and falls to sleep in that position ; she may be a little restless ; turn a little more on her side ; the child's face is pressed against the soft bosom, its mouth is full with the nipple, the result being that the nose gets pressed into the breast, the child cannot breathe, and has not enough strength to get away from its mother and is suffocated. The grief of the mother can be imagined when she awakes and finds her darling dead by her side. All this can be prevented by sitting up in bed when baby is fed during the night. Many mothers imagine that they will not have milk enough to feed a baby unless they drink stout, porter, beer, or some such filthy stuff. I am sorry to say they are often encouraged in this delusion by their family doctor, and the nurse. The milk supplied by Nature from proper food is the best and will do most good to the tender child. That produced by alcoholic drinks is not a proper food, but is an impure one ; it contains alcohol, and makes the baby partly stupified. The result is, that the mother's impure milk makes baby's blood impure, and ill-health results, or it may be the starting point of disease which will affect the child in after years. A common disease one sees in consequence is eczema of the scalp, commonly called "scald head." Mothers who wish fine children must not drink stimulants ; milk, cocoa, or thin gruel will do them more good, and their offspring will not take harm from the mother using these drinks.

FOOD.

When a child is about a year old, or when it has cut a couple of teeth, it may be weaned. This should be done gradually. Baby should have first one meal a day of food other than the breast, say for a month, then two meals a day for another month, and then in three months' time it may have three meals. The first meal it has should be given at midday, the second must be breakfast, and the last solid meal must be about five o'clock.

When a baby is brought up by the bottle, or by hand, as it is commonly called, great care must be exercised or ill-health soon results. There should be two feeding bottles, one in use the other in soak. For the first three months the bottle-fed baby must be given food only once in three hours ; after three months once in four hours, and solid food only when two teeth are through. Here I must warn mothers against feeding babies with solid foods, as gruels, biscuits, tops and bottoms, rusks, or any patent solid foods, no matter whose, before they cut their teeth ; injury or ill-health must result. Children cannot digest starchy foods before they cut some teeth, and nearly all the foods in the market are composed principally of starch. Many children whilst cutting their teeth have convulsions or some other disease because they are overfed, or fed with solid foods. A good number of the infants that die are killed by over feeding or improper foods. These foods give rise to diarrhoea, or set up slow inflammation of the lining of the bowels, and so the infant gradually wastes away and dies. At this time, too, the foundation of future digestive diseases is laid, and doubtless some of the cases of chronic stomach troubles in grown up people might be traced to wrong feeding in infancy.

A child brought up by hand may have two parts of cow's milk and one of barley water, oatmeal water, or common water, up to three months. These should be mixed cold, then boiled, and allowed to go nearly cold again. (The reason why they should be boiled before being given to the child is to destroy any disease germs the milk or water may contain.) Sugar must not be added, as it causes wind, restlessness, fretfulness, etc. A very simple test to know if the food is too hot, is the tip of the little finger ;

if the food feels hot to this, then it is too hot for baby's stomach. A quick way to cool hot food is to stand the bottle in a basin of cold water or pour it from one cup to another for a few minutes. After three months the proportion of milk and water may be three parts of milk to one of water, whilst at and after six months it may be nearly pure milk.

Infants must not be given any solid foods until they cut at least two teeth, even if they are twelve or fifteen months old before any appear, or ill consequences may result. Nor should a child be given solid food before nine months even if it has cut many teeth. Babies must not be given tinned or condensed milk, as these cause acidity, flatulence, vomiting, feverishness, fretfulness, sleeplessness, etc., besides filling the child's system with injurious matters that feed any complaint it may take. The sugar in the milk is out of proportion to the other constituents.

The first solid food a child has must be a proper food and one capable of sustaining baby and supplying its organs with what they want. Such food in this country is the grain of wheat, oats, or barley, in other words a child's first food should be either fine wheatmeal or oatmeal or barley-meal. When I speak of wholemeal, I mean the entire wheaten grain ground to a fine powder and nothing removed. These may be well cooked, mixed with milk and baby can be fed on them.

This should be the first solid meal given to babies but only when they have two teeth through. I am very particular about the food supplied to children, as a great deal of future misery or happiness depends on the food given during the first few years of life. Wholemeal and oatmeal or barley-meal with milk are the best foods a baby can have, as they contain every requisite for growth and life. When children are fed on white bread sop, on rusks, on tops and bottoms, and especially if fed on arrowroot, sago, etc., they do not get enough bone-forming materials in the blood, and become rickety ; that is, their bones bend and they become bow-legged, pigeon chested, etc. They may suffer from constipation and other ailments as well, and thus grow up delicate, nervous, and miserable people, instead of good, strong, lusty men and women. Children fed on wholemeal bread are more likely to become tall in stature

than those fed on white bread. Mothers who suckle their babies should eat plenty of brown bread, oatmeal, vegetables and fruit if they desire their babies to have good strong bones, and not be stunted or deformed.

When a child is first fed it may be allowed about half an ounce of wholemeal bread and a cup of milk, make into sop, give cool and without sugar. Or half an ounce of fine wheatmeal may be made into porridge with milk and water and given cool. A little fresh fruit may be given afterwards. When the child is allowed two or three meals a day they must be of the same foods. If a child never eats any other food but fine wheatmeal porridge, or wheatmeal bread and milk sop, or oatmeal or barleymeal, and fresh fruit until he is two years old he will thrive well, cut his teeth easily, and be practically free from ailments. He will learn to walk and talk readily, and not suffer from rickets, water on the brain, or consumptive bowels. Up to two years a child does not require more than an ounce of food at each of his three meals. After a child is two years old and if healthy and strong, he may be allowed vegetables and a little plain pudding at dinner. Split peas, haricot beans, lentils, cheese, eggs, fish, flesh, or fowl should not be given to children before they are two years of age. After that age, an egg two or three times a week may be allowed at dinner. Bacon, pork, ham, veal, cod liver oil, Yorkshire and suet puddings, Norfolk and Christmas puddings, etc., should not be given. Pastry and cakes, also sweets and nuts should not be allowed under two years, and afterwards only sparingly. Tea and coffee must not be given to children until they are at least five years old, as they cause nervous disorders in them more readily than in adults, better still if they are never allowed these drinks ; cocoa or milk and water, or plain boiled water are the best for them. To let a child sip wine, beer, or spirits and water is the height of wrong doing, and may result in the child occupying an early grave, or joining the army of outcast drunkards.

If children never touch meat until they are five years old they will be all the better for doing without it. Some mothers are often unnecessarily anxious because their children refuse to eat meat ; they need not trouble about this, as I know some dozens of very fine healthy children, and

men and women too, who have never tasted butcher's meat in their lives. Children should always have plenty of drinking water where they can easily get to it. A large jug of boiled or filtered water should be within reach, so that if thirsty they may quench their thirst naturally and healthfully. This is very needful in the country, because the ditch or brook water that a thirsty child will drink, if no other is at hand, often contains the eggs of long worms, thread worms, tape worms, or the germs of various infectious fevers.

When a child is feverish, falls off in his play, is sick, fretful and irritable, it nearly always shows wrong feeding. The simplest way of treating this is to give the child no food for a day or two but milk and water or gruel, and give a couple of warm baths. This early treatment may save an illness of many days' duration. At another time I shall write of children's diseases.

A question I am frequently asked is how to cure constipation in babies. If the baby is brought up by the breast then I should recommend the mother to eat freely of brown bread, fruit and vegetables. If the baby is still costive, allow it twice a day a well stewed and finely mashed prune. If this is insufficient a teaspoonful of fine wheatmeal may be boiled for a quarter of an hour in little water and baby be given this once a day; or a piece of brown bread, the size of a walnut, may be well soaked in hot water and this given once a day. Besides this, the stomach may be rubbed with a little sweet or castor oil for about five or ten minutes at a time. In extreme cases an injection of soap and warm water may be used, but very rarely must a dose of oil be given. The bowels of older children can be regulated by daily use of brown bread, fruit and vegetables. Mothers often worry unnecessarily about baby's bowels; constipation in infants is not so bad as in adults.

BATHING.

Babies should have two baths daily, a lukewarm one in the morning and a warmer one at night. These should be continued until the child is about eighteen months old, then it may have a bath with the chill off every morning and its hands and face sponged two or three times a day.

As soon as children can be taught to act for themselves they should be instructed to sponge their bodies down daily, and thus get into cleanly habits, which may save them much sickness in after life. Bathing has a double action, first that of keeping the millions of skin pores open, and so allowing waste material to easily escape from the body. Secondly, it acts as a tonic, by exposing the naked skin to the cold air. This exposure tempers or hardens the skin, tones the system, and so makes them less liable to colds. In connection with bathing, if the sun is shining, it will do baby good to expose the naked body to its warm rays for a little time. To wash children, a good non-irritating soap should be used, as old brown Windsor, etc. The head should not be washed with soap every day, but only once a week. After bathing dry well with a smooth towel, and see no parts which touch are left moist, otherwise redness and chafing occurs. At these parts a little powdered starch-flour, or Fuller's earth may be applied.

FRESH AIR.

The inestimable importance of fresh air to babies is not sufficiently known. It is of more value to them than to adults. It was found many years ago in the Rotunda Hospital, Dublin, that a great many children died a few days after birth from a kind of fit or lockjaw. The doctors could not understand this, and the deaths did not cease until the wards were properly ventilated. The same thing was seen in the Hebrides I believe; the people there had the horse, fowls, sheep, and goats sleeping in the same room as themselves, and the manure from these animals was piled up in one corner; they had no windows, and only a hole in the roof to let out the smoke. The result of this was that the infant mortality was very great. The minister who had a properly built house, and outhouses for his cattle was the only one who could bring up a family. A child must have plenty of fresh air. Its crib, cot, or cradle must not be surrounded with curtains keeping out the fresh air. If you want to keep the flies off, cover the cradle with gauze, but not with cloth of any sort. The bedroom in which baby sleeps should have the window open a little, and the room in which it is kept during the day should also

have the window open a little. After baby is 14 days old it may go out every day, or even twice a day. The best time to take a child out is when the sun is shining, but it should be sent out every day unless the weather is wet or snowy. Windy weather does not hurt the child, but puts colour on its cheeks. I appeal to all mothers if this fact I name is not true, "children become less cross and irritable the moment they go out, and in most cases they soon fall asleep." When they grow older they always look bright when you suggest a "tata," and nothing pleases a child more than to be out in the open air. In connection with this subject it must be always borne in mind that coughs, colds and chests complaints in children always arise from a deficiency of pure air ; keep them out of close and unventilated places if you wish them to be free from croup, bronchitis or inflammation of the lungs. The moral to be drawn from these remarks is to let your children have as much pure air as possible. The difference between town children and country children is mainly due to the latter getting more fresh air and sunshine than the former.

EXERCISE.

A baby should be taken out in a perambulator daily, and of perambulators the best kind is that in which baby can lie at full length. At home baby may be laid on the bed on his back and allowed to throw his arms and legs about. As he gets older he may be put on the floor and allowed to crawl about. Never force a child to walk, nor fret because he does not walk as soon as some other child does. Some children crawl about a long time before they walk, whilst some take to walking early. Children vary in this respect : in the country you may see them walking at eight or nine months ; whilst in town it is nearer twelve months, or even later in some cases before they can toddle. When a child can once walk you must expect him to go everywhere and be in every kind of mischief. He is not content with walking, but must climb also, as the arm muscles want exercise as well as those of the leg. Sensible parents will provide some simple apparatus for their offspring to indulge in climbing without danger. Children will not exercise too much. When they are tired they will stop or will come in-

doors and fall asleep until rested. It is a mistake to curb children and be afraid of letting them tire themselves. It is also a mistake to make them be still. Every house should have space for them where they can romp and play to their heart's content ; and when friends visit one another, the children of both should be let loose in the garden or nursery whilst the older folks enjoy a social talk. It is the first duty of every parent to give his child or children good sound constitutions ; then, if the children have any genius or "go" in them it will work out. This robust health I speak of is obtained by plenty of romping, playing, and running whilst young, so let children have plenty of such exercise

SLEEP.

The first few months of life a baby passes is nearly all spent in sleep. This is the natural course of events. As it grows older it grows more wakeful. A child should always be left to itself with regard to rest. Whenever a child says it is tired let it sleep by all means. Grown up persons may also take a hint from this, and rest when they feel tired. But let this natural weariness be distinguished from the drowsiness due to too much food. During sleep do not let the child be covered with too much clothing as this makes it perspire unnecessarily, which weakens it.

CLOTHING.

A child should be comfortably but not heavily clad. Children have really an aversion to clothes, as we know by the fact that they always pull them off when they can ; and as they cannot usually unfasten their other garments, they have to be content with pulling off their shoes and stockings. A very happy time in a child's life is the morning, before it is dressed, when it can run about in its nightdress and enjoy itself. The heavy coverings with which many mothers cover the heads of their children may help on water on the brain, so provide cotton caps for your children. When I see mothers clothe their children in heavy material, and much of it, I know that the child is very uncomfortable, and I know that the mother is making her

offspring delicate. The fact that many mothers will not let their children go out to play without they wear an over-coat and a muffler is deplorable. The muffled-up child cannot exercise properly, it soon perspires, is easily fatigued, and quickly takes cold. Had the child gone out in its ordinary clothing it would have been able to play about freely, the perspiration would escape easily, and the child would be pounds better for the exercise. Over-dressed children have pale suffering faces, in contradistinction to the red, rosy faces of less dressed ones. Of the two evils, under-dressing or too little clothing is less harmful than too much. If a child is cold clothes will not give heat, they only retain heat. Exercise is the best warmer and the most natural.

WALKING.

Children rarely begin to walk before nine months; and they may not do so until 12 or 18 months old. Leave them alone, do not force them to walk before they try for themselves, otherwise you may do them harm. If children are given the foods recommended in former articles they will not suffer from crooked legs. But if a child has bowed legs already, then feed on the foods I name above, and do not make him run about too much, but leave him to crawl or do what he will.

TEETH.

The teeth usually begin to come through about the sixth month; some few before, but the majority after this period. When a child is brought up by the rules I have laid down there will be no trouble with the teeth, they will slowly come through, and be cut without any upset to the system. The first sign of cutting the teeth is the dribbling of saliva from the mouth. The gums next feel hotter than usual, a whitish spot is seen on the gum, and lastly the tooth appears. When children are fed with solid foods before the teeth appear then convulsions, feverishness, and other troubles occur during the time of cutting them. Many mothers are troubled because their children do not cut their teeth as early as other people's children. This backwardness can-

not be helped, and mothers will do well not to worry ; let them eat the foods I recommend and then they will supply their babes with all the requisite bone-forming materials. I must earnestly warn mothers against giving their children so-called "teething powders." These cannot help the teeth through, but they may do much harm by purging, griping, and stupifying the baby. In some cases they produce many ill results ; all sensible mothers will avoid them. The milk teeth should be cut by the second year and ought to last until the seventh. If a child is given proper food and a fair amount of crusts and hard foods its teeth will not decay early, but will last until the second set push the first set out. A child should be taught to brush the teeth at an early age.

TALKING.

Children begin to speak about ten months, but only very simple words at first. An idea which seems widely spread is that most children are tongue-tied, and so cannot suck or speak properly. This is untrue ; I have never seen such a case, though I have notched dozens of tongues to satisfy mothers and nurses. It is a good practice to call everything by its proper name, and let the child acquire the real names from the first. Thus, call a certain animal "a horse" and not a "gee-gee," and call an engine and carriages "a train," not a "puff-puff," and so on. Recollect that the first impressions are the most lasting. When a child is deaf and dumb its deafness is first noticed. If only backward in speaking, leave it alone, time and rearing as I advise will cure it and nothing else. In concluding these articles on children I must ask all parents to be careful with their children and not frighten them. Do not terrify them with tales of ghosts, or goblins, and do not threaten them with vague terrors. If a child has to be corrected then punish it and show the child that you mean what you say. To menace a child and never carry out your threats only makes it defy you. I do not believe much in thrashing or beating, but more in suasion and firmness. The French have a proverb which says that "To reform children you must reform their grandmothers." I hope those who are mothers and who read these lines

will some day become grandmothers, and then their grandchildren at least will be healthy and vigorous, and examples of proper bringing up.

N.B. Babies must never be given drugs or medicines, as they are more readily killed by such things than are adults. So called soothing, cooling, and teething powders have hurried thousands to an early grave. Medicines and powders given by drug doctors are even more harmful, and many a sorrowing mother would now have her baby to comfort her had she thrown the medicines down the sink, instead of giving them to her tender babe. The same applies to brandy and wine. I never use medicines or intoxicants (so called stimulants) in my practice, and rarely lose a child.

HEALTH.

Health is that state of the system in which all our organs act properly, and we suffer no bodily pain nor mental trouble. Health in itself is one of the greatest pleasures we can enjoy, and we only find this out when tortured by disease. This happy state can be obtained by the due observance of certain laws which govern our existence ; and these laws are as fixed as the laws of light and heat. The conditions of health may be roughly put down as a constant supply of pure air ; food in the quantity and of the quality to supply all our bodily wants ; water to carry nourishment into the system, and to carry out waste ; exercise to keep our muscles in proper condition ; and clean skins to allow of the excretion of useless matter from our bodies. To these we must add a philosophic temperament, to enable us to meet the rebuffs of life, and so not worry over what cannot always be avoided. To gain health we must strive for it, as we do for other things. Riches without health are of very little value, and though money can buy the best advice, it cannot buy health ; whilst if we have health we can make money. Health lies practically in our own hands, and we must not put down illness to chance, but know that it comes from a violation of natural laws. We are all born with a certain amount of vitality which can be increased or diminished by our acts. Nature is always striving after health, for this is the natural state of the body under proper conditions ; and if we are born weakly this is no reason why we should always be ailing, for by care we can acquire a strong healthy constitution. A person who is poor might as well say that his poverty was caused by his parents being in humble circumstances. By proper living a person born of consumptive or delicate parents, may have less illness and live longer than a strong and robust person who takes no care of himself. As Lord Bacon says : "A cripple in the right way, will beat a racer in the wrong." Having shown what health is, how it is to be got, and kept, and that it is in our own hands entirely, I shall at another time take up the various items which make up health, and explain them separately and in detail.

LONGEVITY.

The question of man's age is one simply of calculation based on certain lines. Most animals live six times the period they take in coming to puberty, some say to maturity. Man attains puberty about the age of fifteen; and if we multiply this by six, we get ninety years as being man's proper age at the time of death. If we reckon by maturity, we get a longer period. Man comes to maturity from twenty to twenty-five years; and if we take the lower number for calculation, and multiply by six as before, we get a hundred and twenty years as man's natural age at death. Now that we have got some idea of man's proper limit of life, let us see how he may shorten it. Take anyone with an average constitution, not a weakly, delicate person, nor a strong, healthy one, but a medium one, and that person, with care, should not die under seventy unless by accident. If a man is regular in his habits, temperate in food and drink, has some regular occupation, and can attain philosophic calmness to take the world as he finds it, then he may live out his allotted time. But if he is irregular in his habits, intemperate in food and drink, if he smokes, breathe vitiated or poisoned air, and take no care of himself, then he will die before his natural time. The more physical sins he commits the sooner will he quit this sphere. Excessive abuse of any particular organ may wear it out, and so the physical machinery of the body will come to an end, because one part is worn out, and no other organ can do its work. Thus if a person wear out his stomach by eating too much food, drinking too much wine, beer, or spirits, and irritating it by saliva laden with tobacco juice, he must die, even though his other organs are yet fairly healthy. The laws which govern the life of man are as fixed as those which govern electric action or chemical change, only not so well known. We know enough of the workings of these laws to foretell what will happen if certain

conditions are not complied with. Man's life is dependent on all the surrounding forces ; and is increased or diminished according as the conditions are good or bad. If we obey natural laws, we live out our full time ; if not we die before our allotted age. Our physical sins are followed by the shortening of our lives. Man's organs have regular periods for growth, maturity, and decay. If we respect our persons in their physical conditions these organs will last out their time, but if we do otherwise they will fail and bring the body to premature dissolution. I can only finish with an almost unknown quotation : "He who dies under seventy is guilty of physical suicide."

THE TEETH.

The cure and management of the teeth form a very prominent item in our present civilization. It has been said that as modern civilization advances, the decay of our teeth advances with it. The causes are easily seen when looked for, and depend largely upon our artificial mode of living. Let us now take a review of the teeth. Children are usually born toothless, but one or two are occasionally found in the jaw at birth. I have seen one child born with two teeth. About the fourth month the first sign of teething occurs—namely, a continual dribbling of saliva from the child's mouth. The first tooth comes through at any time from the fifth to the ninth month or later, and the first set, or milk teeth as they are called, should be cut by the time that the child is about two years of age. To feed babies with solid food the first few months of life, often results in sleepless nights, crossness, and convulsions at the period of teething. This points to the fact that children should not be fed with solid food, but kept on mother's milk or on cow's milk until they have cut at least two teeth. The first set of teeth are twenty in number; they should last until about seven, when they are gradually shed and the permanent teeth take their place. During this displacement of the milk teeth by the permanent ones, many irregularities may occur. Sometimes the jaw is not large enough, and they overcrowd each other; or not being able to get through at the proper spot they project inwardly or outwardly from the jaw. In cases of this kind a good dentist should be consulted and the matter put to rights. The permanent set begin to come through about seven, and are not all cut until from eighteen to twenty-five. It is a very instructive sight to see the skull of a child about six years old that has lost none of its teeth, then one sees fifty-two teeth in the jaws; the milk teeth are projecting beyond the gum, whilst above

them in the upper jaw is the permanent set, and below the lower milk set in the lower jaw are the lower permanent teeth. At maturity each jaw contains sixteen permanent teeth, that is, thirty-two in all. They are thus set in either jaw :—Four incisors or cutters in front; outside these, two canine, eye, or dog teeth, one on each side; next there are four bicuspids, two on each side, and lastly, there are six molars or grinders, three on each side. The last molars, above and below, are called the wisdom teeth, and do not come through before eighteen, and even may not be cut until twenty-five years of age; very frequently they are also the first to decay. The structure of the teeth points to the fact that man is a fruit and grain eating animal, and not a mixed feeder. In some monkeys, as the ourang-outang, the teeth are the same in number and make as ours, only in the monkeys the canine or dog teeth are longer. This is because they use them for tearing off the husks of nuts, and for weapons of attack and defence. The three kinds of teeth in man are meant for cutting or biting, tearing, and grinding our food, that it may be reduced to a pulpy mass before it reaches the stomach, and so be easier of digestion. Men sometimes use their teeth for fighting purposes, and if in a dirty condition they may give rise to a poisoned wound, and death may follow. As an ornament and aid to natural beauty good teeth are not to be despised, whilst they are invaluable aids to proper digestion and to clear speech. To secure good teeth we must have such foods as contain bone-forming matter for making them. Whilst we are taking the breast our mothers ought to eat foods rich in mineral matter, such as wheat-meal, in the form of bread, or oatmeal, barley meal, hominy, fruits, and vegetables. As soon as we begin to eat, our first food should be oatmeal or wheatmeal porridge, brown bread, fruits, milk, and milk puddings. As we grow older we should continue our oatmeal and wheat-meal, learn to chew crusts, avoid strong drinks and stimulants, and then we shall retain our teeth longer than we now usually do, and suffer less from decay and consequent tooth-ache. To keep our teeth in good condition we must exercise them, for if we do not they gradually decay. Such exercise is found in eating hard food, as biscuits, crusts, raw fruits, and nuts.

The rational care of our teeth consists in thorough cleanliness, and the avoidance of what causes their destruction. Cleanliness consists in brushing them at least once a day, rinsing the mouth out after food, and in removing particles of food from between them by means of a soft toothpick. The substances which cause their destruction are hot foods and drinks, soft foods, and the use of corrosive substances, as acid piquant sauces, vinegar, unless with oil as in salads, acid medicines, and some kinds of rough tooth powder or paste. Hot foods or drinks cause a cracking of the dental enamel, which is the starting-point of decay. Soft foods require very little chewing, and so, the teeth not having enough to do, become weak and loose in the jaws. Vinegar, acids, and corrosive medicines destroy the enamel by eating it away ; and for this reason mineral acids used to whiten the teeth are most injurious, causing their quick decay. It is a wise plan to rinse the mouth out after eating pickles and salads. Sugar is said to favour decay by slowly fermenting in the mouth, acid is formed, and does much mischief. I cannot say whether this is correct or not, but I can say that if a tooth is decayed and a bit of sugar gets to it, it causes acute pain. A soft brush is best for cleaning the teeth, as a hard one brushes back the gum and exposes the root, and then decay sets in. The best and simplest tooth powder is precipitated or prepared chalk ; and next comes finely powdered Castille soap, some people using a mixture of the two. Powdered pumice stone and charcoal should be avoided, as they wear away the enamel. Dark teeth may be occasionally brushed with a little lemon juice, and the mouth rinsed out directly afterwards. Mattieu Williams recommends, when travelling, that a raw apple be eaten each morning, when no toothbrush will be needed. When decay once sets in a tooth we cannot well use it, nor even always that same side of the mouth ; consequently the teeth on that side get covered with tartar, and are more liable to decay than the others. Toothache, commonly called neuralgia, is set up by food lodging in the decayed tooth, irritating the nerve, and causing pain. This pain extends along the jaw, side of face and neck of the side affected. Abscess at the tooth root is caused in the same way, only the system is in a disordered condition, and relieves itself at the decayed tooth. The only preventive

for toothache and abscess is to have all decayed teeth stopped. Temporary relief may be obtained by applying chlorodyne, or creosote on cotton wool, to the decayed tooth. Neuralgia is not the same as toothache. It is deeper seated, and may arise in a jaw that does not contain any teeth in it. This disease is a sign of a disordered system, and anything which lowers the vitality may give rise to it. The constant use of beer, wine, or spirits, and the use of tobacco are among its causes. To cure it, bad habits must be given up, and proper ones formed. Tobacco, instead of preserving the teeth, blackens them, loosens them in the jaw, and makes the gums spongy; whilst as a remedy for toothache, the cure is as bad as the disease. If a pipe is smoked it wears away the teeth by which it is usually held, and we see a notch in the teeth at the side of the mouth where the pipe is kept. Foul breath is generally caused by a decayed tooth. One bad tooth will foul the breath for months if not corrected. A lesser cause is constipation, which must be remedied by proper food. When the natural teeth are gone, we should supply their place by artificial ones, which are very useful in chewing and speaking, and are a decided aid to a good personal appearance. In Cooley's "Toilet and Cosmetic Arts" we find this sentence: "The people of the north of Europe eat coarse black bread, and dentists and dentistry are unknown among them." I hope these remarks may instruct many, and induce them to take care of these priceless pearls, which should be things of beauty and a joy to us as long as we live.

FOOD.

The food question is one that occupies the mind of every thinking person at one time or another, for on his food depends, in a great measure, his health and happiness. A German proverb very aptly says "A man is what he eats." This is to a very great extent true. A person who eats impure or unwholesome food must expect to make impure or unhealthy blood, and a diseased condition of the system. It is said that in England "the rich eat what they like, and the poor what they can get." That such a state of things should exist in a country that pretends to lead the world is very sad. Every animal has its proper food, on which it thrives best, has least ailments, and most happiness. Man himself is physically an animal, and has an appropriate food, and if he will eat that food only he will get great comfort and happiness, live long, and be free from all the diseases produced by wrong living. Man's structure points to a certain diet; and the more he strays from the food indicated by his formation, the more ill health he gets, and the shorter life he has. Man can and does live on everything, but because he can do so is no reason why he should do so. Man eats clay or earth, insects, worms, shell-fish, crustaceans, fish, fowl, and quadrupeds—aye, even his fellow-man; he also feeds on plants of every kind, on their seeds, on gourds, nuts, fruits, and roots. He obtains nourishment from all these things, but certain things that he makes his foods carry with them disease. Man is very foolish if he continues to use them, when experience shows that such foods give rise to disease and premature death; yet most persons eat foods and never inquire whether they are proper and good, but take them because they are set before them, or because it is the custom to eat them. I wish my readers to eat only such foods as their structure points out and experience shows to be good, and not to be led away by mere fashion. If they will act on the lines I indicate, they will live ration-

ally and suffer little from dietetic diseases, which make up as much as six-tenths of our ailments.

A food may be defined to be any substance which adds power or force to the body. If a substance enables the body to use up reserved force, that is not a food but a stimulant. Chemically speaking, our foods are composed of four chief elements:—carbon, nitrogen, oxygen, and hydrogen. To these we must add salts of lime, magnesia, soda, and potash, with iron, phosphorus, and other minerals in small quantities. These chemicals must be combined in certain forms, or else they are useless. Thus, I might take a piece of charcoal, dip it in spirits of hartshorn and water, and tell you it contains the four chief elements I have above named, but yet it would not be food, as the system could not use it. If we burn the charcoal, turn it into carbonic acid gas, and then allow a plant to absorb this by its leaves; and if we moisten our plant's roots with the ammonia and water, so that it may absorb some of it, the plant will use up these substances and form from them leaves, stem, and fruit. We may then eat the fruit, the nutriment from which our system can absorb and use, though it could not use the crude elements from which the fruit was formed. Thus we see that the elements must be in certain combinations before our systems can use them. I want my readers to recollect this fact, as I shall use it at another time to show that drugs are injurious instead of being good. The most important of these elements is carbon, which supplies the system with heat and force; next in order comes nitrogen for our muscles; oxygen and hydrogen form the water of our bodies; while the various mineral matters form our bones, teeth, and other hard mechanical parts. Every living creature, even the tiniest atom we can only see by the aid of a powerful microscope, absorbs food and only that which is suited to its structure.

MAN'S FOOD FROM HIS STRUCTURE.

In considering the food best fitted for man we must argue from a comparison of his structure with that of other animals. Man, like other animals, is an evolution : that is he has developed from a tiny atom into the being we now behold by a gradual series of improvements. Now the nearest relation to man is the ape. We have very little structural difference from this animal. Our blood is the same as his, our bones are the same in number and in form, our muscles are practically the same, and he has all the organs we have. He sees by structures the same as ours, he has the same senses, the same passions, and vanities, and reproduction takes the same course in him as in mankind. The hair on the human body lies in the same way as it does on certain apes, whilst the structure of the foot in them and in us is very much the same, only civilisation, boots, and the habit of living on the ground instead of in trees makes our feet less useful than theirs. Their wounds heal the same as ours, they die from the same diseases, are poisoned by the same drugs, and if they are put under wrong conditions they suffer from the same diseases as man will do under like wrong states. If then they are so like us in structure and in habits, why are we different from them in food? The reason may have been necessity in the first instance and custom in the second. The monkey is a non-flesh eater. He lives chiefly on fruits, nuts, grains, and the green parts of trees or plants, To these he sometimes adds the eggs of birds, but very rarely will he kill anything for food. Man's structure may be gathered from four or five points, such as the structure of the teeth, the tongue, the stomach and bowels, the nails, perspiring skin, and erect position ; whilst the peculiar function of the saliva must be taken into consideration. The structure of the teeth shows they were never intended for tearing flesh. Their number and shape prove they were meant for cutting or biting, tearing, and for chewing or grinding.

The front teeth are for biting, as a piece out of an apple ; the so-called canines or dog-teeth for tearing off the husks of nuts or for fighting ; whilst the molars or grinders are meant for reducing our food to a pulp before it is swallowed. The tongue is covered with three sorts of "taste spots" to warn us if food is poisonous or if it be good. In fact, man has a tongue that can be finely educated and that enables him to tell the difference between the immense varieties of fruits and nuts, whilst carnivorous animals have very little taste. Man's stomach is simple, and the bowels are thirty-three feet in length and lined with small projections to prevent the food passing through them too quickly. This points to a food containing much innutritious matter and in itself not too nourishing. The lining of the bowels secrete fluids to dissolve nourishment from the food. The flat nails on the fingers and toes are not intended for holding, like the claws of the tiger or cat. They protect the ends of the fingers and toes, and are useful for peeling fruits. The perspiring skin points to a diet rich in heat-forming materials ; where the carbonaceous matter was largely in excess of the nitrogenous, and to get rid of this excess the perspiring skin was developed. The erect posture does not fit man for springing on animals and seizing them. When man drinks he does not lap like cats and tigers, but drinks like monkeys, sheep, and other herbivorous and frugivorous animals. Man's whole structure points to a diet of fruits, nuts, grains, gourds, and green parts of vegetables. Man's use of flesh has induced many diseases, and all the evidence I can find shows he is worse mentally, morally, and physically for this change. In future articles I hope to show this plainly to my readers, and if the evidence satisfies them, they should try the effect on themselves of a diet into which flesh does not enter.

BROWN BREAD.

In my lectures on Health I always advise my hearers to eat brown bread. Now what do I mean by brown bread, and why do I recommend its use? By brown bread I mean wheatmeal or wholemeal bread, that is, the entire wheaten grain finely ground and made into bread by any of the known ways, with nothing left out, nor must it be made with chemicals. The reasons why we should use the entire grain are many. Wheat is a seed consisting of an outer covering, commonly called bran, and a starchy kernel from which white flour is made. The bran consists of innutritious ligneous or woody fibres, and also of most of the mineral matter of the wheat, such as the phosphates, iron &c. Just beneath the outer coat is a layer of cells containing much of the nitrogen in the grain, and the greater part of this, together with the mineral matter, is lost when we throw away the bran. The result is, that by using white bread we get a food which is deficient in mineral matter: the flesh-forming material is in wrong proportions and we are not properly nourished. In consequence, our teeth decay early, our children often suffer from rickets, and we are not satisfied with our food. Mothers who are suckling their children should always eat brown bread, as it helps to form teeth and bones for the child. Rickets arise from a want of lime salts in the blood, and can only be cured by means of brown bread or oatmeal. Giving phosphate of lime alone will not cure. Milk used to be considered a type of a perfect food; and so it is for young animals. The type of a perfect solid food for a grown up man is wheat. It contains vegetable nitrogen, for building up muscles; starch for giving heat and force; mineral salts, for bones, teeth, &c., and a certain amount of innutritious matter which causes a daily action of the bowels. Brown bread and water contain everything necessary for a hard working life. Persons who eat white bread often suffer from an

inward craving or sinking ; to cure this, recourse is often had to beer, wine, or spirits, which lulls the craving for a time. If they ate brown bread they would not suffer from this, and we should be a more sober nation. Now, leaving aside the chemical nature of the bran, we come to another point, its use mechanically. The innutritious bran has two very important uses. First, it separates the particles of food and allows the gastric and various intestinal juices to penetrate, and so thoroughly to dissolve all the possible nutriment from the food we eat ; and next, by its bulk it helps to fill the stomach, and keeps us from eating too much. It also aids in filling up the small intestines, and stimulates the involuntary muscles of the bowels, thus causing daily laxation. One great curse of this country is constipation which is caused in a great measure by white bread. From constipation arises back-ache, piles, varicocele, varicose veins and ulcers, &c. ; while from the bile and other intestinal excretions not being daily got rid of, we get headache, irritability, dulness, miserable feelings &c. There is an old joke about doctors being in league with undertakers. If I were to relate the joke, I should say the millers and bakers were in our pay, because if it were not for white bread, we should have less to do. Separating the bran from the flour may be said to have come into fashion at the beginning of this century, and, as a consequence, pill factories arose, and are now almost a necessary part of the State. Would you banish the pill box from your private cupboard ? Then you must drive white bread from your table. All who are naturally costive should use brown bread. I have cured thousands of long-standing cases of constipation simply by its use. Growing children should always eat it, as it forms bones for them, and prevents straining at stool, which sometimes causes falling of the bowel. Adults should use it, as by causing laxation it will leave their heads clearer for their business. Old persons should always use it, as straining of stool in the old may give rise to a stroke of apoplexy. You may want to know how to get it. If you live in the country you must get a miller to grind you some wheat very fine, and he must not take any thing away. If you live in a town you must order a corn chandler to procure you some, or a miller to supply you with it. From the entire wheatmeal make your bread.

If living in a town there is almost sure to be some baker who supplies wholemeal bread. Be sure you get it, use no other, and beware of spurious imitations.* After a little time its taste grows on you, and white bread then seems tasteless, dry, and sawdusty. Soon none but the poor and ignorant will use white bread. Brown bread is not a luxury, but a necessity to every family, and no house is complete unless it is provided at every meal.

* Volume III of *Essays* tells how to judge bread.

BREAD AND BREAD MAKING.

In the article before this I treat of the value of bread made from entire wheatmeal. In this I shall show how to get a good bread. I am sorry to say it, but many of the samples of bread sent to me have been simply a mixture of bran and white flour. In some cases mixtures of pollards, seconds, and flour. To get a perfect bread five things are necessary:— 1st. Your materials must be of the best kind. 2nd. These must be finely ground. 3rd. Nothing must be taken away. 4th. Nothing injurious must be added; and 5th, the bread should be well baked.

I. Only the best materials must be used, or the bread will be inferior in flavour and in nourishing qualities.

The stuff called wholemeal used by some bakers is nothing but damaged and inferior flour. In France and Germany, bad wheat gives rise to a very distressing condition, known as ergotism, from the ergot of rye being in the flour; whilst in Italy a disease known as pellagra is brought on by eating diseased Indian corn. A mixture of foreign and English wheats gives a better bread, than if either is used separately.

II. It must be finely ground. What disgusts many people with wholemeal bread is its coarseness and roughness. Some bread one sees looks as if the wheat had simply been crushed and made into loaves. This is wrong. If the wheat is finely ground, we digest it quicker, get more nutriment from it, and our intestines are not irritated by big pieces of bran. Coarse bread causes too loose a condition of the bowels, and so the food is carried off before we get all the nutrient matter from it.

III. Nothing must be removed. There are granulated, decorticated, and other breads in the market. In all of these a portion of the bran has been removed,

This is wrong for the bran has beneficial uses. In the first place, the bran contains mineral matter useful in forming bone and teeth and for the blood; next, the particles of bran give bulk to the food, fill up the intestines, allow the intestinal juices to penetrate into and around the food; and, lastly, they also act as a stimulant to the intestinal muscles, and so cause daily action of the bowels. When the entire bran is removed some of the flesh-forming part of the wheaten grain is lost, and nearly all the mineral matter.

IV. Nothing must be added. An unleavened and aerated bread would be the best if of the entire meal, but I know of none. The next simplest process is to use yeast as a raiser. I object to the various chemical raisers as they may contain impurities, and even if pure do not properly unite, and our teeth and internal organs are injured by the chemicals employed. The ordinary raisers used are baking powders composed of bicarbonate of soda, tartaric acid, and powdered rice. This raises bread nicely, but leaves in your loaf tartrate of soda, or even uncombined soda. This soda helps on rheumatism, gout, stone in bladder, kidneys and gall bladder, and produces other evils as well. Persons eating soda-made bread like its nutty flavour. It is really the soda they taste, not the wheat. A more scientific mixture is hydrochloric or muriatic acid, and bicarbonate of soda. The union of these is supposed to leave only common salt in the bread after raising it. In practice there is always an excess of either acid or soda. The latter gives rise to the evils mentioned above, and the former is in itself a poison and frequently contains arsenic—a most deadly poison. At the least the teeth are injured, and the bread will not keep long, so use yeast only.

V. Bread should be well baked. A well baked loaf keeps sweet longer, and is easier of digestion than one half baked. It need not be made light and spongy. There is really no objection to a solid hard loaf except that time is required to chew it.

Gem bread is raised by steam; these gems are very sweet and wholesome to eat, and are easily made. The Vegetarian Society, 75 Princess Street, Manchester, will inform enquirers where to obtain the gem pans. Gems are thus made:—Mix finely-ground wheatmeal into a bat-

ter with water, stir well so as to mix air with the batter, and make it almost as thick as porridge. Have the gem pan at a black heat and greased, then drop a spoonful of batter into each compartment, and return the pan into a very hot oven. They bake in about twenty-five or thirty minutes. These are pure wheatmeal and water, and can be eaten soon after they are baked.

To get pure wheatmeal, the best plan is to have a wheat mill and grind the wheat yourself. Such a mill can be obtained from any large ironmonger. By means of it you are independent of the miller. Good wholemeal bread is made thus:—Put in a bread mug about seven pounds of wholemeal flour. Make a hole in the centre of the flour, and into this pour a quart of warm water, in which half an ounce of German yeast has been dissolved. Gradually stir flour and yeast together until well mixed into a dough, and allow to ferment an hour before the fire. Then add a little more warm water and a little salt, one or two tablespoonfuls to taste. Knead well again, let it stand for another hour in front of the fire, then fill your bread tins from this, and bake about an hour. A little experience and a few trials will soon make perfect.

Unfermented rolls are the purest form of bread, are easily made, and will bake in any oven. They are made by mixing wholemeal flour with cold water into a stiff dough, mould into pieces the size and shape of a turkey's egg, and bake for $\frac{3}{4}$ of an hour. To keep the crust soft, bake under a tin. Now, none need be without wholemeal bread. They have all the necessary information; and it only wants applying.

THE NECESSITY FOR FOOD.

Man can live for about five days without taking food or drink, and if water be allowed he can live up to ten or more days. He can do this because there is stored up in the system a reserve of nutriment which is consumed when we abstain from food. We see instances of this in sickness. Before a person is taken ill he may be stout and well proportioned, but after an illness he is thin and emaciated. In the majority of cases there is wasting of the body in disease because the stomach is unable to digest or absorb the food taken, and life is chiefly kept going by the system using up the reserve nutriment. When the disease has run its course, the body stores up more reserve food and so regains its plumpness and fat. Man may be said to be merely a machine, kept going by the food he takes. If he eats too little he cannot work at full speed, whilst if he eats too much he clogs up his machinery and so comes to grief. Every thought, word, or action means a using up of force (*i. e.*, of food.) To many it may seem strange, but yet it is nevertheless true, that our greatest thoughts, our passions, our everything are merely the result of the food we take. The brain is a structure that changes food into thought, or, to put it more plainly, by means of the brain a piece of brown bread may be changed into a poem that may last as long as mankind. Hence the necessity for food and its being proper in quantity and quality. A simpler illustration of the reason that we need food is seen in the case of a man who gets up in the morning, eats his breakfast and lies on the couch until dinner time, when he eats his dinner and lies down again until tea time, has his tea and rests again until he goes to bed. Next morning he is ready for his breakfast, and this may go on from day to day, and yet the person be always ready for his meals. If you had to ask him what he had done, he would reply he had done nothing, yet we know he was ready for his meals and ate them with a relish. The reason why he was ready for food, and needed it, was because his body really was not idle whilst he was lying on the couch,

although he himself was unconscious of it. His heart beat at the rate of about 72 times a minute, and this in twenty-four hours uses up enough force to raise 260 tons one foot high. Then he was breathing about sixteen times a minute ; he was digesting his food ; repairing his tissues ; saliva, tears, urine, &c., were being constantly secreted, all of these requiring food to supply force to keep them going. Another great cause of food being constantly required is the fact that the body is always kept at one heat. The temperature of the human body is 98½ Faht. No matter how cold the weather our bodies are always at one heat. To keep up this heat, a large amount of carbonaceous food is necessary, for we are constantly losing heat by radiation from our bodies. Every breath we exhale carries off heat, and all excretions also carry off some. Food which is eaten cold must be raised to the temperature of the body, and so extracts heat from it. If the body were cooled down to 90 Faht. we could not live. Then again every thought we think, everything we hear, see, touch or smell causes a usage of force and heat to allow us to be conscious of these things. Thus I come to my original assertion that man is simply a machine which consumes food and gives out work in return. On the structure of the machine will depend the work done. One man may eat a slice of brown bread, and the result may be a poem ; another man may produce a picture from it ; another a grand mechanical invention ; whilst a man who has large muscles will exhibit a grand athletic feat in return for his piece of bread. We may take food to be the basis of all our actions ; and on the structure of the man will depend into what it is turned. From a piece of steel many things can be made, such as a compass, a tuning fork, or a gun ; but it is still steel, the particular form or shape depending on the mechanic who fashions it. So in a great measure we are dependent on our food. What that food should be, and how it affects us for good or for bad, how it makes us ill or well, and how we may be long-lived or short-lived by means of the food eaten, I hope to show in future pages.

DAILY FOOD.

I have from time to time received a great number of letters from persons, of whom very few are living in a rational way. They are eating food of such a kind as will make them ill, therefore I forestall one of my articles on Food, by giving dietetic rules for daily life. I beg to remind my readers that food should be eaten with the purpose of nourishing the body, and only just so much as will do so. More than this amount means waste of vital power in first absorbing and then in getting rid of food, and so the strength we should gain is lost by the excess of food eaten. Another fault I find is that many persons eat too much nitrogenous food. It seems to be an idea amongst the people that the more meat or animal substances they eat the better they are. This is wrong; for if flesh is eaten more than once a day, or in a larger daily quantity than four ounces, ill must result. Our best physiologists calculate that four ounces of flesh food, or its equivalent in peas, beans, or lentils, is required to keep our muscles in repair, and that the hardest working navvy, or blacksmith should not eat more than six ounces a day. In working we do not directly wear away our muscles, but burn up heat and force-forming foods and get energy from them. If we compare our bodies to steam engines, we find that both must consume fuel to get power. What coal is to the engine, so are carbonaceous foods (sugar and oil) to the body. The steam engine wears itself away slowly, and so do our muscles. You can put too much coal on your engine fire, and so lessen the amount of power got from your machine; and you can feed too well, and so lessen the bodily energy. To get your engine to work well, you must supply proper fuel, in proper quantity, and at stated intervals, keep up a glowing fire, and see the ashes are raked out. The same with our bodies; we must supply them with proper food, in proper quantity, at stated intervals, keep up proper combustion by pure air and by exercise, and see our excretory organs are in good condition.

Some people, with good constitutions, can eat large quantities of food, and yet live to a respectable age. Had they only lived rightly, and wasted none of their superfluous energy, they might have lived longer and done more good. I am of opinion that three meals a day are as many as the ordinary man can readily absorb and use up. The meals should be five hours apart, so as to give the stomach a little rest after its three or four hours work in digesting the food; they should be eaten slowly, and the food well masticated. Chewing food greatly lightens the stomach's work. Plain food should always be eaten; we should stop at the first feeling of satisfaction, and then we shall not over-eat. Breakfast may be between 8 and 9 a. m. It may consist of oatmeal, wheatmeal, hominy, or barley porridge, eaten with milk or fruit. Others can have brown bread and butter, an egg, and a cup of cocoa, or milk and water. I cannot countenance the use of fat bacon, ham, fish or meat at the first meal. Dinner, five hours after this, may consist of 4 oz. of plain lean beef, mutton, poultry, rabbit, or fish, with two vegetables, followed by a light pudding, fruit pie, or stewed fruit. Many are content to dine off a single course, and they are wise, as this does not lead to over eating. Tea should be five hours after dinner. It may consist of weak tea, coffee, or cocoa, with brown bread, or toast, butter, stewed fruit, milk pudding, celery, boiled onions, or a salad, or other green stuff. No meat or fish is required at this meal. There should be no supper. If a person feels hungry and faint then, a cup of cocoa will take this away. Persons who dine late may lunch in the middle of the day, but should not have meat at both lunch and dinner. The vegetarian can have macaroni cheese, pulse, eggs, or other nitrogenous food in strict moderation daily. These rules will guide many until I consider the food question, when I shall write more fully, and go more into details. Many have already received benefit by adopting this dietary, and many more may do so, if they will follow it.

SUMMER LIVING.

It behoves thinking people to so fashion their mode of living that they may enjoy the warm summer weather fully, and lay in a store of good health to last them all through our dull and depressing winter. Summer is the time when we should acquire a stock of vitality so that we may have a reserve fund should such ever be needed. First, as to food. Our diet must now include light foods. The heavy gross fat meats of winter should now be banished, and light meats as poultry, or else fish, take their place. Fatty, greasy, and highly-seasoned foods should be avoided—the fatty and greasy because they supply too much heat to the body, and hence make us suffer from the heat and be more liable to sunstroke; whilst the highly-seasoned, by causing thirst, add to our discomfort. We know that the natural heat of the summer makes us more or less thirsty, but highly-seasoned foods cause excessive thirst, and thus we are forced to drink more fluid than is good for us. Suppers must be especially avoided in hot weather, or they may produce a feverish condition of the system and make us wakeful. Fish, meat, or cheese for supper in warm weather gives rise to severe diarrhoea in some persons. Those who would like to try some non-flesh dishes can do so now with comfort. At the tea meal salads and green stuff of all sorts can be eaten with benefit. Salads are cooling on account of the water and mild acids they contain. Those who desire clear complexions cannot do better than eat freely of salads, as they are among the best blood purifiers known. Cucumbers are usually said to be indigestible, but if eaten plain with bread and butter or a little sugar, but not vinegar, such will not be found to be the case. Ripe fruits of all kinds can be eaten freely. Let each kind be eaten as it comes in season and great benefit will result.

From the middle or the end of May bathing may be commenced, in the sea or in fresh water. Two or three

baths a week should be taken if possible, whilst thoes who have the time and opportunity may take one daily. A daily swim is useful in many ways. It acts as a tonic to the system generally, while the action of the sun and air on the naked skin is very invigorating. Even the most delicate may begin to have a sponge down with cold water every morning. Those whose lives are chiefly spent in offices should get up early and have a swim before breakfast. It will keep them fresh all day. Fresh air can, in summer be freely breathed both day and night. The bedroom windows should be kept wide open; nothing calms, one so much as the cool night air. Consumptives and all delicate chested persons must make most of the summer to get strong. They must be out as much as possible and get fresh air always. Sitting and work room windows should be always wide open, so that the fresh air may fill the rooms. Exercise must be taken systematically, the long days allowing persons to be up early and out late, before and after office hours. Young folks must now polish up their "wheel machines" and take daily runs, or they may row on the river. To those who can afford it, I should say, run away from Saturday to Monday, as it will do you a world of good, and the money you spend in or on your trips will be saved in doctors' bills. My young lady readers cannot do better than join a lawn tennis club and practise daily, or they may get their brother, or some one else's brother to take them for a run on a social or tandem tricycle. A word in season as to clothing. Wear light things. Do not dress heavily as if you were afraid of the weather. In hot weather the lighter the clothing the better. Those who dare should now wear straw hats and light-coloured clothes, and then they may be in comfort, whilst their more unfortunate friends are sweltering in uncomfortable black coats and nonsensical tall hats. I hardly need say that cooling drinks in summer are not harmful so long as they are taken in moderation, and for a thirst-quencher and cooler nothing equals cold oatmeal water and a slice of lemon in it—with but little sugar.

FRUIT.

The majority of people are fond of fruit and would eat freely of it were it not for the fact that they are afraid of ill results. Children are proverbially fond of fruit, and they will eat it in any stage from unripeness to decay. This craving for fruit is a natural one and should be satisfied. Where people live in a fair average way they may eat it freely and experience no ill results. The secret of fruit eating is that one should make a meal of it instead of finishing up a meal with it. After one has had meat and pudding to repletion, perhaps washed down with strong liquors, then he may eat a strawberry or two, and feel upset; the cause is the heavy food, not the light fruit. Here is a pleasant way of taking fruit and getting the full benefit of it:—Make a meal of dry brown bread and fruit; it may be breakfast, lunch, or tea. Any of these meals may consist of dry brown bread with cherries, strawberries, gooseberries, plums, or whatever is in season. The reason I ask persons to eat dry bread with it is to bring out the full flavor of the fruit. If butter is on the bread, then the salt in the butter or the flavour of the butter itself spoils that of the fruit. When a meal like this is made, no fluids are required. To the person weary of ordinary food I cannot recommend a more pleasant change. Try this plan with children on Saturdays or half-holidays when they are in the way at home. Buy them some good ripe fruit, give them some brown bread with a bottle of milk and water, and send them off to the park, common, or other place where they can play. The fruit and bread is for their food. Older children may make use of the same hint for pic-nics and take a goodly supply of fruit with them.

Fruit contains the same nourishment as other foods, only not in so concentrated a form. Fruit consists chiefly of water, containing from 70 to 90 per cent., a fair proportion of sugar, a little nitrogenous material, vegetable acids and salts and insoluble matter. Fruit may be said to be

a perfect food for a state of indolence. It contains enough nourishment to keep a person in health if he is not doing much; and as it consists of so large a percentage of water, thirst is not experienced by those who eat freely of it. Fruit is invaluable to the system in hot weather, as it supplies it with fluid; and not containing any fat or other very heating material, the body itself does not generate so much heat and is therefore cooler. The vegetable acids of fruits are useful for making lime and soda salts soluble, which can then be thrown out of the system, and so getting rid of gall stones, stone in the bladder or kidneys, or other diseases due to the presence of these salts in the blood. The vegetable salts that fruits contain are also necessary to the system, which they supply with mineral water in a form it can use, and were fruits always used there would be no such thing as scurvy and scorbutic complaints. Fruits are good in constipation. The skins of fruits such as of the apple, pear, plum, cherry gooseberry, and grape should always be eaten, as these contain the vegetable salts, and being insoluble themselves, they help to cause daily action of the bowels; fruit should not be eaten in the evening. An early tea is the last meal at which it should be taken. In France and Germany there is the "grape cure" for many diseases, and indeed it is invaluable in many complaints. To carry it out properly one should live in the country the whole time while undergoing it, and eat freely of ripe fruit. In Germany a person begins with eating a pound or two of grapes with bread and increases the quantity of grapes until he can eat half a dozen or more pounds during the day. Of course very little bread is eaten as more grapes are taken. This is a famous cure for obesity and diseases due to high living. In Germany during the cherry season the druggists' takings are said to be only half the usual amount.

My readers now, I hope, will see the value of fruit as a food and as a corrective of any disordered condition of the system, and they should not let a day pass without taking fruit with at least one meal.

THE TRUTH ABOUT VEGETARIANISM.

The question of diet is one that must attract the attention of every thinking person at some time or other of his life, and as there are certain people who will not take steps of any kind until they are satisfied everything is safe, so there are others who rush in blindly where angels fear to tread. For both these classes and for the public generally I write upon this subject from a purely rational view. We may define a vegetarian as one who does not kill an animal for food, nor will he cause animals to be killed for food, but he may eat animal products, such as eggs, milk, butter, cheese, and honey. A vegetarian thus makes an artificial distinction of foods. He eats eggs which may contain potent life, and he drinks milk meant for a young calf, but he will not eat the producers of these foods. Life is no criterion to go by, for the vegetarian who eats a bit of cabbage may destroy hundreds of lives on that cabbage, and when he drinks any country water, he may swallow an aquatic multitude. The difference between animals and plants is purely an arbitrary one, for where plant life ends and animal life begins is unknown to the scientist. Many plants are higher in intelligence than some animals, and though I myself firmly believe that the primitive diet of man was of fruit and grain, yet there are some persons who would like to argue that man has really sprung from flesh-eating ancestors. Now, amongst all these conflicting arguments to whom or to what fact shall we appeal? To facts; on facts only can we place any reliance. Now what do facts prove as regards this question? Facts show that a man can live healthily and be strong on a diet into which flesh does not enter. First, with regard to strength, this country contains hundreds of hard working men who never eat any fish, flesh, or fowl, from year's end to year's end. Blacksmiths, porters, miners, carpenters, fishermen, puddlers, agricultural labourers &c., are found in the ranks of the Vegetarian Society; whilst its roll contains the

names of many men known to intellectual fame. Thus strength of body and mind are compatible with a non-flesh diet. Now with regard to health. My own experience and researches show me that a properly selected non-flesh diet is the best for health. I have inquired into the subject, and I find that the non-flesh eater suffers from less illness than the mixed feeder. Again, experience has shewn me that in many severe cases of stomach, liver, and kidney disease it was only by such a non-flesh diet that I could do any good. In the majority of cases the result has been most satisfactory, and many persons are now hale and well who before were partially disabled. No one who adopts a non-flesh diet must expect to lose all his ailments by this simple diet alone. Many vegetarians come to consult me, but only a small proportion from their ranks as compared with those who are meat eaters. If a vegetarian does not breathe pure air, take regular exercise, and keep his skin pores open, then he must suffer from complaints due to the neglect of these conditions. The chief evils that the vegetarian escapes are constipation, piles and varicose veins. Indigestion, stomach, and liver complaints do not trouble him much, as a rule, whilst kidney complaints are uncommon. In other words, he escapes most of the plethoric diseases, or complaints due to overfeeding. His wounds and bruises usually heal quicker than those of a mixed feeder, and his recovery from illness is rapid. His illnesses are generally fewer, shorter, and less severe than if he were a mixed feeder. In summing up, we must not overlook the fact that most vegetarians are also non-smokers and teetotallers, and many of them are hygienists as well. These things account for their good health, and not diet alone. I have seen vegetarians die from consumption and chest complaints, and occasionally have skin diseases. They very rarely suffer from gout or rheumatism. They cannot suffer from tapeworm for they do not eat meat, and they escape all the diseases due to bad or diseased butcher's meat, of which I know a great deal is sold. Again, what is flesh but grains and vegetables, in another form? To the philosophic inquirer all flesh is only grass under another form or name, whilst experience shows him that a non-flesh eater can live and work at less cost than a mixed feeder, and has better health. When a

person asks me if it is safe to be a non-flesh eater, I answer it is, only he must be a rational one and live on scientific lines. He must take cereals in place of flesh, and must eat peas, beans, or lentils daily in small quantities, or in average quantities every other day. He must also eat fruits and vegetables freely. If he will do this and carry out the other hygienic rules I lay down, he will be as healthy and well as possible. But beware of vegetarianism as a religion, or a fad. In these cases it is injurious and liable to lead one astray, but as a rational way of living there is none better.

FRESH AIR.

Few people know the value of pure air. Many are afraid of it as if it were a poisonous gas to be kept out of their rooms, or only to be breathed through a respirator. Now pure air is our best friend, and be it warm or cold we cannot have too much of it. We can eat too much food, drink too much water, exercise too violently, bathe too often, and sleep too long, but we cannot breathe too much pure air. Our systems constantly demand it for the maintenance of heat, for the oxidation or burning up of waste material, and for general use all over the system. Few people have a correct idea how injurious bad air is or how much mischief is caused by living in a close room from day to day. A few figures will make this plain to everyone. An adult usually breathes eighteen times every minute, and should inhale at each breath about two pints of air. Every time we breathe out, the air that is expelled requires ten times its volume of pure air to make it again fit for respiration. Eighteen breaths a minute gives us 1,080 per hour, and 25,920 per day. If we allow two pints of air at each inspiration this gives us over 50,000 pints of air a day. So if the air we breathe contains only a hundredth part more impurity than the natural air, this represents, in a day, over 500 pints of foul, impure, and poisonous air, and if we had to breathe it all at once instead of being spread over the day, we should die in about five minutes. Now this hundredth part is very small. In actual life we find that people sometimes breathe air containing a very large proportion of carbonic acid gas, *i.e.*, the poisonous gas got rid of by the lungs. Air is a mechanical mixture of two gases. Every hundred parts contain about 80 parts of nitrogen, and 20 of oxygen. It also contains about one twenty-fifth of one per cent. of carbonic acid gas, and a little watery vapour. The air breathed out from the lungs contains in a hundred parts about 80 parts of nitrogen, 15 parts of oxygen, and 5 parts of carbonic acid gas, watery vapour, and organic matter—

i.e., a portion of the excreta of the body. When air contains less than 7 parts of oxygen in a hundred, it cannot be breathed and death results. So that if a person would shut himself up in an air-tight room he could poison himself very quickly by his own breath ; or if a person could stop up his nose and breathe into a bladder, and breathe the same air over and over again, and could get no other, he would die in about ten minutes. The air we breathe contains one twenty-fifth part of 1 per cent. of carbonic acid gas but the air we breathe out contains 4 parts of carbonic acid gas per hundred parts, or an increase of about a hundred parts of impurity. This impure gas remains in the air of rooms, fouls the rest, and so we go on breathing bad air and making it worse every minute. Were there not continual draughts of fresh air coming in under the door, by the fireplace, where the window frames meet, etc., we should soon be poisoned and rendered senseless. When we burn coal, coke, gas, oil, candles, etc., we produce similar carbonic acid gas to that expelled by the lungs. A fire usually carries up the chimney the waste products of combustion ; but a gas stove, or any stove that does not communicate with the outer air, or that burns gas, oil, coke, etc., poisons the air, and is very injurious. We reckon that a candle consumes as much air every minute as does a man, whilst a lamp consumes twice as much, and every gas burner consumes three times as much air as a man. Dare my readers now continue to poison themselves all day and all night long, as many of them do, by breathing bad air? One point I am very particular about, and that is having the window open at night. Most people imagine that night air is injurious, that it causes coughs, colds, consumption, and other evils. They never made a greater blunder ; it is impure air that causes these complaints. If the air is bad out of doors it must be worse indoors, so of two evils choose the lesser, and breathe pure cold air, and not impure warm air. Recollect that at night all the air breathed, both indoors and out, is night air. Most persons spend at least eight hours out of the twenty-four in their bedrooms, i.e., a third of their lives, and are content to breathe bad air in them. During the night the breath contains more poisonous gas than during the day, because during the night repair of the tissues goes on, and more waste material is then got

rid of. This necessitates plenty of pure air for its complete burning up. Persons who sleep in unventilated bedrooms must not expect that freshness of a morning, that liveliness, that feeling of buoyancy, and that "go" in them, and relish for food, that a person enjoys who keeps his bedroom window open all night. Bad air causes morning cough, colds, influenzas, pleurisy, bronchitis, inflammation of the lungs, and consumption. To these we must add dirty skins and complexions, boils, pimples, and black-heads, inflamed eyes, sore throats, quinseys, more or less deafness in consequence of inflamed throats, and in many a desire for strong drink, to overcome the depression caused by bad air. To those who wish to be in good health I say, get fresh air internally, externally and as long as you live.

EXERCISE.

As a rule, English people eat too much food and take too little exercise. In our ordinary every-day life exercise demands more attention than is usually given to it. It is a most important factor in our well-being, and if it be not taken daily, ill must result. We have some hundreds of muscles in our bodies, and if these are not exercised and brought into action they waste away, or remain small, and so a person does not attain his full development. In days of old might was right, and might was most often got with the strongest muscles. Giants in those days were not looked at only for their size, but admired for their strength and power. Nowadays, we usually exercise our brains and let our muscles dwindle away to mere rudiments. Let us follow the daily round of many town-dwellers. They get up in the morning, swallow a hurried meal, and go off to business by 'bus, tram, or train; write all the morning until dinner time, take this meal leisurely, read the paper, and then return to their offices, where they sit writing, etc., until four, five, or six p.m. They then ride home, get their evening meal, and in many instances never stir out again, but read the latest novel, the evening paper, or study, or else practise on the violin, piano, etc. They retire to bed at eleven or twelve, and think they have done wisely. Perhaps, on Saturday afternoon, they write up back correspondences, or do a little repairing, or odd jobs at home. On a Sunday they may go to church once or twice. This is what men do. What ladies do is much worse, for some of them do not leave their houses above once or twice a week, and then only to go to a neighbouring house, where they usually spend their time indoors chatting, knitting, or doing fancy work. When I know all this I am not in the least surprised that our youths and maidens have pale faces, and suffer from pimples, blackheads, constipation, bilious attacks, hacking coughs, nasty colds, feeble circulations, and even consumption. Physiologists calculate that every person requires

three hours' moderate daily exercise to keep in fair condition. This may be taken in a dozen different ways, such as walking, rowing, running, climbing, skating, rinking, cycling, horse exercise, or physical labour. To get the full value of exercise it must be taken in the open air, and then the poisonous material thrown off by the breath is not re-breathed. When I advise persons to walk nine miles a day, I am only trying to make them conform to physiological laws, for nine miles can be walked leisurely in three hours. I should advise every person who wants to keep himself in fair average health to walk to and from business daily, if not living more than four miles away. If he has four miles' walk there and four back he will not suffer much from want of exercise, and he need not take any more after he gets home. But if he ride to and from business, then he must exercise before he starts in the morning or when he gets home, and that exercise should consist of about three hours daily. On Saturday and Sunday, too, exercise and fresh air must be had. On Saturday afternoon the bicycle or tricycle may be wheeled out and a good run made on that, or strong shoes put on and a good tramp taken. The same on Sunday, for when persons are engaged in office all the week, they cannot afford to spend all Sunday in badly-lighted and unventilated churches or lecture rooms. To my young lady readers I say take exercise. Help your servants or mothers to make the beds, then if you have a little spare time put on your walking boots, whistle for the dog, and take him for a good run somewhere round the neighbourhood ; then your vivacity, cheerful spirits, rosy cheeks, and general good health will more likely gain for you a husband than if you become sickly and pale, and unable to walk a mile without being tired. Young ladies are usually great sinners with regard to taking exercise, and they are those who want it most, for when they become mothers they should be strong, so as to give their offspring strong bodies and robust constitutions. Young fellows at night do get a little exercise when they play billiards. They walk then at the rate of two miles an hour, besides using their arms and bodies a little. I have at present an objection to billiards, because the game is usually played in gas-tightened, tobacco-laden, and ill-ventilated rooms. Were it otherwise it would be a pleasant game, and one that could

be indulged in, after a hard day's work, with comfort ; and but for the first and last of these drawbacks, balls and dances would afford wholesome and agreeable exercise for both sexes. I now advise all young fellows I can to join a gymnastic or athletic club, or a Volunteer corps. A man who practises various athletic exercises is an all-round man. He has good arms and legs, and so is more perfect than a man who rows, walks, or only uses one set of muscles. To sum up, exercise strengthens the muscles, increases the power of the heart, invigorates the body, clears the mind, causes warmth, burns up waste material and excess of food, acts as a charm in low spirits, helps on sound sleep, and is beneficial in every way when not carried to excess. Statistics show that persons who work hard with their muscles are less likely to commit suicide than those whose occupation is sedentary or purely mental. Criminals in the New York Reformatory were even found to improve in conduct and intelligence when they were taught to practise daily physical exercise. Naughtiness in children usually results from want of proper outlet for youthful energy.

BATHING.

The influence on the body of bathing is twofold ; first, we have the exposure of the naked body to the air, and second, the influence of water itself at various temperatures on the skin, and through it on the system. Few people are aware of the value of exposing the skin to the surrounding air. They are afraid if they do so that they will catch cold, or else that something very dreadful will happen. Man by right belongs to a warm climate, and as such has no original need for the wearing of clothes. The wearing of clothes prevents the proper escape of the perspiration, and keeps the skin at a higher temperature than is natural. This mode of keeping the skin unnaturally hot makes us perspire more than we ought, and if we are exposed to a draught soon after or do not cool down slowly, we get a chill and some illness may follow. The daily exposure of the naked body is good ; it hardens the skin and makes it used to the cold air, and so we are less liable to chills. This exposure is also good in that it allows the skin to exchange some of its products, for the skin absorbs a little air and expels poisonous matters through its pores.

The second action is that of water at various temperatures on the skin, and, through it, on the system. If we apply very cold water we make the blood vessels in the skin contract and congest the internal organs ; whilst if we apply hot water we make them dilate, and draw more blood to the skin, and it becomes red in consequence. I want my readers to remember this fact, as I shall show how we can make use of it in the cure of disease. If we examine the skin we find it contains millions of minute pores, or outlets, that are constantly excreting very small quantities of watery fluid. The skin in fact gives off nearly as much fluid in twenty-four hours as do the kidneys. This perspiration is full of waste material ; contains various salts and used-up material of the body in a soluble form, and is one of the most offensive fluids that is excreted by the body.

If the skin did not act so powerfully as it does, much more work would have to be done by the kidneys, lungs, and liver, so that keeping the skin in good condition means so much less work for these vital organs to do. When persons have skins that do not perspire freely, poisonous matter is retained in the system, and frequently gives rise to gout and rheumatism. It is a well-known fact that persons with these complaints have very dry skins, and do not perspire as freely as others. The custom of wearing clothes prevents the proper escape of this perspiration ; the solid parts adhere to the clothes and are rubbed upon the skin by our ordinary movements, and block up many of the pores. This results in some poisonous matter being retained in the system, and it is this stuff which is a common cause or propagator of disease. A daily sponge down with cold or tepid water, and a brisk rub down with a rough towel afterwards, cleanses the surface of the body, keeps the pores open, allows the waste material to escape, and thus our systems being clear of this poisonous matter disease cannot arise ; the exposure is also beneficial in itself and adds tone to the system. Here, then, are a few arguments for the daily sponge down with cold or tepid water, and a good rub with a rough towel afterwards. At another time I will write on various kinds of the bath, and show the different action on the system of hot, cold, and Turkish baths.

L I G H T.

Who does not know the good influence of a bright day on the mind and temper? There are some people so constituted that their very spirits depend in a great measure on the weather. Is it bright and cheerful, they are well; but is it dull and dark, they become depressed and dispirited. As it is with these peculiarly constituted ones so is it more or less with all of us. A bright day makes us feel well, and a dull one more or less miserable. If we will glance around us we may see some cause for all this. Looking first at plants we find that those grown in dark cellars or gloomy places are always pale and blanched; whilst in rooms, that side of the plant which is next the light has always the most leaves on, and all the branches grow towards the light. Plants brought up in plenty of light thrive well and cheer us by their beauty. Among the inferior animals we find light necessary for growth and development. It is said that tadpoles will never become frogs if they are kept always in the dark. Animals in a state of nature bask in the sun and revel in its life-giving rays; human beings greatly improve by being much in its light; while those brought up in cellars or dark rooms are pale, sickly-looking, languid, and without energy. Who does not envy the brown, sturdy gipsy child; and who is not proud of his brown sun-burnt face after a holiday? A person with a good colour is said to look well. Absence of light must often mean an absence of air; absence of both is soon followed by disease. If we compare the mortality of the sunny and the shady sides of a street we find that most deaths occur on the dark side. In Italy the rent of rooms is higher in some of the towns as you ascend, for as you are elevated you get more light and sunshine. The Italians have a saying, "Where the sun does not enter the doctor does." In parts of Southern Germany, where the people live in cave houses, there are many cretins or idiotic children. Light is destructive to many low forms of germ-

life, as these cannot live in sun-light. Many people are afraid of the sun, and try to exclude it from their rooms by blinds and curtains. Could I but banish all blinds and curtains and light obstructors I would. If persons are afraid of the sun spoiling their carpets, let them put some druggetting over them, or else buy such carpets as will not fade. If the sun makes their rooms hot, well and good, they can then open their windows and cool their rooms by fresh air. Knowing the value of light and its influence on the body I never sleep with my blinds down, nor will I allow my blinds to be pulled down when the hot afternoon sun is shining into my room. I also walk by preference in the sun and not in the shade, for I am not afraid of sun-stroke, since I live correctly.

MORAL.—Get as much light in your house as possible. Welcome the light, and let it have free access to all your rooms, and do not keep it out by curtains, &c. When possible expose your body to the sunlight, it strengthens it, tones it, and preserves you against colds. Let your children expose as much of their bodies as possible to its genial rays especially in warm weather. The good influence of a sea bath is partly due to the consequent exposure of the body to the sun and air. When I take my holiday, and enjoy a sea bath on a quiet unfrequented shore, I try to manage to also have a sun and air bath of long duration, as by this means I gain a good stock of health and vitality. In America and Germany they have what is known as the "sun cure." The body is exposed to the direct rays of the sun, and beneficial results are obtained. In future I hope my readers will not be afraid of the light, but get as much of it as possible on this and every subject.

HOLIDAYS.

We all know the sayings about the necessity of relaxation. Thus we have "All work and no play makes Jack a dull boy;" whilst "A bow always bent soon breaks," and "A little frolic now and then is relished by the greatest men," are familiar to all. Proverbs remind us of the necessity for occasional recreation, and if we put into practice these trite sayings, we act wisely. Recreation really means a change of scene or of occupation; thus, a hard working mechanic would be recreating himself if he laid on a sandy beach all day, looked up at the sky, and tried to solve some of the many problems that every day trouble him. The ardent student should relax himself by throwing aside his books and having a spell of hard physical work, or by walking, rowing, tricycling, &c. The country person enjoys a run into a busy town to see its wonders; whilst the seaside dweller should go away to hills or mountains. By this means we get not only a change of occupation but also a change of scene, and our minds become renovated as well as our bodies. Every thoughtful person will make provision for an annual holiday, somewhere or other. As grocers advertise their "Christmas club," so our prudent man will have his "Holiday fund." He puts by a few shillings every week, and in July or August he has a sum at his disposal for his holiday. The best time of the year for an enjoyable holiday is the summer or early autumn. The country is then looking its best, the days are fine and long, fruit is ripe, the scent of flowers fills the air, and all nature is gay and compels one's admiration. The next question is, where shall we go? Town dwellers who have friends and relatives in the country should go there, especially if there are children and not too much spare cash. Those without country friends should go to some country farm-house where the children can have plenty of fresh milk, fruit, and vegetables, and can be out in the open air all day long, dirty

themselves as much as they please, and put on their old clothes and tear them without being scolded. This is the true pleasure of children. At the same time as the children are running wild and getting the last wear out of their old clothes, their parents may visit all the ruins, remarkable churches and old curiosities in the neighbourhood—and there are very few places that have not some remarkable histories or associations. Let the young man without wife or encumbrances have a walking or tricycling tour, or a stay at the seaside, with its morning bath and the afternoon walk, or its row. Elderly people who have done all the hard walking they intend doing, can frequent the seaside places, walk along the promenade, and watch the younger generation actively enjoying themselves.

Better take a fortnight's holiday than two separate weeks. One can get a great deal more benefit from two week's continuous holiday, than from even three separate weeks. Whilst on your holiday obey the hygienic conditions, so that you may get the greatest possible benefit from the change. If you take a holiday, and eat improper food and are put into rooms as small as a bathing machine, and shut windows, or have bad sanitary surroundings, then it would have been better never to have gone away at all. If these hints are taken, the holiday will be enjoyed, you will look back to it with pleasure and forward to the next one with joy. You will gain an immense reserve of vital force and strength, and return to your customary work like giants refreshed.

DISEASE.

Disease is that state of the system in which we have bodily pain, or distressing thoughts, or loss of the balance of energy. In other words, a natural act may be accompanied by pain, as pain in breathing during pleurisy; or there is pain where there should be none, as in a joint during rheumatism; or a natural function may be increased or diminished, as the action of the bowels is increased in diarrhoea, and diminished in constipation. Instead of bodily pain we may have morbid ideas, such as that we are going to die at a certain age, or that we shall fail in business, or gloomy religious fancies, etc., according to our work or studies. The presence of parasites is not disease, though they may give rise to unusual sensations. Disease is a physiological process whereby certain organs have their functions increased, or diminished, or their usual action is accompanied by pain; it is a natural condition, being an attempt to accommodate the system to wrong conditions. Thus, when we eat too much food the stomach has to secrete more gastric juice, and work more continuously, and not getting sufficient rest, fatigue is induced; as a result the food is not properly digested, and so particles of imperfectly prepared materials are taken into the system. In the first case indigestion, stomach pain, and other evils result; in the latter we have rheumatic pains or morbid fancies. But if the stomach does digest all the food taken into it, the system is flooded with more nutriment than it can use; if of the carbonaceous kind, we put on flesh; if nitrogenous we suffer from gout, rheumatism, bad temper, &c. This excess of food causes overwork to the excretory organs and hence arises disease of the liver, kidneys, and other organs. Whilst this excess of material is in the system its vitality is lowered, and when the natural balance is upset by a chill or draught, it does not recover easily, and disease is set up. Whether it be inflammation of the lungs or bowels depends on the

habits of the person. Had there been no waste in the system, the upset would only be slight and the recovery would be rapid. We see the same during the healing of wounds. Two persons suffer from a cut, one is cured in ten days, whilst in the other erysipelas sets in, or the wound is a long time in healing. Hence the duration of disease depends on our habits; if they are good we shall suffer little; the worse they are the more we suffer. Disease is not a something foreign to the system, but altered natural action, the system trying to adopt itself to wrong living and to restore health. Nature cures disease by banishing the appetite or intake of food, then she gets rid of the waste in the system by violent sweats, purging, vomiting, &c. The rational cure of disease is to lessen our intake, and to aid the system to get rid of excess or wrong material by means of exercise, fresh air, and hot baths. These allow the system to clear itself without introducing poisonous drugs, which lower vitality, and never do any lasting good.

THE UNITY OF DISEASE.

Persons who enquire into the Hygienic treatment of diseases are struck with the similarity of treatment which I advise, no matter what the complaint. All are advised not to smoke, nor drink stimulants; to eat plain food in moderation; to have wholemeal bread instead of white; to exercise daily; to breathe fresh air always; and to keep their skin pores open. The four chief laws of life are—simple food, proper in quantity and quality, and having a sufficiency of bulk to cause daily laxation; fresh air to purify the blood, and keep up the heat of the body; exercise to keep the muscles in order, and open the skin pores; and bathing to free the skin from dirt, and so allow waste material to be more easily thrown out. Of all the persons who visit me each week, not one does exactly right, whilst many are wasting life and energy by using alcohol and tobacco. The majority are eating more than their bodies require, the excess food causes plethora, low spirits, bilious attacks, headaches, noises in the head, specks before the eyes, pain in the back, along the neck and behind the eyes, failing sight, loss of bodily and mental power, etc. Some are eating wrong foods, such as white bread, peeled potatoes, meat, or not taking enough fresh fruit and vegetables. These suffer from constipation, backache, piles, varicose veins, heavy dull feelings, and loss of energy. Some eat too fatty or greasy foods, and subject themselves to heartburn, acidity of the stomach, and skin eruptions. Foods made sweet by added sugar, cause wind in the stomach, sleepy feelings, want of energy, skin eruptions, flushes of heat, etc. Some do not take enough exercise; these suffer from cold hands and feet, poor circulation, chilblains in winter, red noses, and depressed feelings. Those who do not breathe pure air, may suffer from inflamed eyes, deafness, a spitting up of phlegm in the morning, morning and evening cough, cold in the head or nasal catarrh, pleurisy, bronchitis, inflammation of

the lungs, or any respiratory complaint, even consumption itself, may follow from a weakly person frequently breathing bad air. Those whose skins are dirty, are subject to fev^e and internal congestions or inflammations. If we add to these complaints the cases of sore throat, deafness, heart disease, indigestion, cancer, short sight, and loss of mental and bodily power produced by tobacco ; and the inflamed stomachs, hardened livers and kidneys, diseased hearts and brains, gout and rheumatism, with nervous disorders produced by beer, wines, and spirits, we get a list containing most of the ailments which afflict humanity. The infectious fevers chiefly attack those whose systems are out of order ; if these do attack fairly healthy persons they run a short, mild course. Now my readers will understand why I usually give to all much the same kind of advice. As long as right conditions are not observed complaints will be common. It matters not to me from what a person suffer, he must live rightly before he can get well. From my point of view I know not many diseases, but only a wrong state of the system, and various local symptoms. All treatment must be much the same with local variations and some dietetic differences, whether a man has indigestion, rheumatism, deafness, dimness of sight, consumption, nervous disease, or apoplexy. The dyspeptic has overtaxed his stomach, the consumptive his lungs, the sufferer from eczema has disordered blood, and so on. Knowing these facts I cannot understand why a doctor wants to use drugs. If we put the patient under proper conditions he will get well of himself. From my stand-point, all drugs are poisons, and instead of curing disease they actually set up other diseases, thus making the wearied system carry an additional load, and so lessening the chance of recovery. I write so confidently because I have successfully treated thousands of patients suffering from different diseases of mild and severe kinds, and have more cures and quicker recoveries than do the prescribers of medicines.

CONSTIPATION.

Constipation is that state of the bowels in which we do not have a daily laxation : and when this condition continues it becomes obstruction which is a serious complaint. I may state distinctly that this costive condition of the bowels is a curse due to our present mode of living—our wrong dietetic and hygienic habits. The generality of people have no idea what an important part the bowels play in their existence. Most of the cases of languor, lassitude, inaptitude for work of a mental or bodily kind, headache, lowness of spirits, and a want-to-be-left-alone feeling, are due to loaded bowels : congestion of the liver, piles, varicose veins, and consequent varicose ulcers are also frequently induced. In the young we see prolapse of the bowel from this cause ; in the adult any tendency to rupture is made worse by it, and in the old, apoplexy or stroke is often brought on by straining at stool. Could we trace many attacks of bad temper, indecision, and want of energy to their proper source we should find it to be an undue loading of the bowels. Constipation may be caused in four ways.—1. Insufficiency of food in the bowels. 2. Want of mechanically stimulating and bulky innutritious particles in the food. 3. The use of astringent drinks or drugs. 4. Want of tone in the muscles of the bowels. Insufficiency of food is seen in cases of starvation, or when a person is put on milk diet. Want of stimulating and innutritious particles is seen in a diet composed of white bread, meat, eggs, puddings of a starchy kind, potatoes, milk, &c. Binding drinks are such as tea and coffee ; and the astringent drugs are opium, lead salts, and most preparations of iron. Want of tone is seen in persons recovering from illness, and in young pasty faced girls. The cure will depend upon the cause. If constipation arises from insufficiency of food, we must eat more, or else not trouble about our bowels. We have thirty-three feet of intestines

in the abdomen, and these must be filled before our bowels will act naturally. In the second case we must eat food containing more innutritious particles which will stimulate the bowels healthily. Now the white bread and other foods I have named are deficient in these particles. To cure this second kind of constipation we should eat wholemeal bread, oatmeal, green vegetables, salads, roots, and fresh and dried fruits. The skins of raw or cooked apples, pears, plums, and many other fruits must be eaten, or constipation may follow their use. The dried fruits best for costive persons are prunes, figs, dates, currants, and raisins. Boiled onions and celery are also good. The reason these things cure constipation is because they give bulk to the food, and thereby stimulate the muscles of the bowel to increased action. The third kind of constipation is cured by abstaining from tea, coffee, and binding drugs. Tea and coffee contain a bitter astringent principle called tannin, which doctors use to check diarrhoea. Surely we do not want to take this daily. Cocoa is a less constipating drink than tea or coffee. For the cure of the last kind, or that due to weakness, we must improve the general health by a daily tepid sponge down, by proper food, by exercise and fresh air. Exercise is good in all cases, be it active, as in walking or other bodily movements, or be it passive, where the bowels are kneaded or shampooed daily with the closed fist. This is the physiological cure of constipation. Now we come to the drug or poison cure, for every time we purge ourselves by medicine we violate nature. In some few cases this may be a necessity, to which we should have recourse as little as possible. Drugs irritate the bowels, and are then thrown off or got rid of as soon as possible by them, and in doing this the food &c., is also carried away. The drugs which healthy bowels will not tolerate, and which are got rid of by purgation, are many—salts of mercury, antimony and other minerals, also vegetable irritants, such as senna, rhubarb, croton oil, castor oil, gamboge, elaterium, aloes, &c. The natural waters which purge contain various salts, such as sulphate of magnesia, sulphate of soda, and salts of potassium. With a very little consideration of these facts, no one can help knowing that every dose of purgative medicine they take is injurious, and were it not for this

purgation they would be poisoned and die. Chronic constipation must be treated by the means I have given above, and only in very exceptional cases must it be treated by poisonous drugs. In many cases an enema of soapy warm water will relieve, and less harm is done by this than by drugs. Let us see how drugs act. They set up violent irritation; and produce the first state of inflammation, hence they cause griping and pain. They empty the intestines of the food by which we are being nourished, and this is why persons often feel weak and low after a purge. In acute illness a purge may cause such a lowering of vitality as to greatly lessen the chance of the person's recovery. The bowels are sometimes so irritated by purgative drugs that diarrhoea or dysentery follows. When the bowels are empty it takes two days or even more to fill them; then the person, thinking he is costive, again takes pills, and so he continues, year in and year out, imagining no one ever had such bowels. I have cured dozens of such cases by getting them to stop all drugs, pills, draughts, &c., and to take proper food. You can readily imagine the great joy over so simple a cure. I will here mention that the fame of many patent medicines is due to their laxative qualities; but why should we need such expensive purgatives when the ready cure lies at our very doors if we will only use it? I add, in conclusion, that all diseases are made worse by constipation, especially those peculiar to women and to young men. Could I make the sale of white bread criminal, I should do more good for my fellow-men than all the laws that have been passed during the last hundred years, but it would ruin pill and patent medicine makers, and work sad havoc among doctors.

BILIOUSNESS.

The symptoms that indicate biliousness do not depend on the bile for their appearance, but on acidity of the stomach.

CAUSE—The chief cause of biliousness is the food we eat. Experience shows that all fatty, oily and greasy foods produce more or less the symptoms known as biliousness; these foods are most likely to cause the symptoms if heated or cooked. This is why fried foods, and all foods cooked in oil, fat, dripping, or lard, cause more or less acidity; for the same reason pastry, pie crust, and foods made with fat or oil cause these symptoms if they are baked, and less so if boiled. The reason of this is that heat causes the fatty food to be split up into other compounds, one of which is acrolein, which is the stuff that causes most trouble. This compound is formed when a candle is blown out and the wick allowed to smoulder. The fat flesh meats cause more biliousness than lean meats; pig in most forms is well known to produce biliousness—this is because its flesh is so full of fat. Those fishes whose flesh is rich in oil are also quick to produce this complaint. Such fishes are eels, salmon, fresh herrings, mackerel, &c., and the liver of the cod. Pâté de foie gras is a very bilious food; this is due to the fact that it is the diseased fatty liver of the artificially fed Strasbourg goose. Uncooked oily and fatty foods do not so readily cause it, this is why the makers of cod liver oil now extract the oil from the livers by cold pressure rather than by boiling, as was the old method. Raw fat may be eaten with impunity as far as biliousness is concerned by many, and nearly all persons can eat salads rich in oil, or take cream, who dare not touch pastry or any cooked fatty food. Cheese acts in the same way; if eaten as it comes from the dairy it will agree, but if cooked as a Welsh rarebit, or used to make a macaroni cheese, it may cause biliousness.

Most converts to vegetarianism lose the biliousness from which they may have suffered, because they have left off meat, fish, and other dishes rich with cooked fat. When vegetarians do suffer from this complaint it is because they indulge in things cooked in fat, as rissoles, cutlets, fritters, pancakes, &c., or because they use fat or oily foods in cookery, as pie crust, pastry, cooked cheese, cakes, &c. To a less degree the sweet foods and drinks cause biliousness. The reason of this is that they ferment in the stomach and cause acidity, which, however, is not so bad as that produced by cooked oily or fatty matters. Alcoholic drinks favour the appearance of biliousness in two ways. First, in malt liquors and wines there are usually some yeast cells, which in the stomach will set up fermentation and produce acetic and other acids. Secondly, the alcohol in these drinks destroys the power of the gastric juice, and thus the germs which we swallow by the thousand, and which are usually destroyed by healthy gastric juice, set up fermentation and more or less acidity. That we may know that we are surrounded by these germs is readily proved, all that is necessary is to let milk stand for twenty-four hours exposed to the air, and it will be soured by the germs which have fallen into it from the air. That the souring is due to this cause can be easily shown thus:—Divide half a pint of milk into two portions, put one portion into a glass and let it stand exposed to the air for twenty-four hours, and it will turn sour. Pour the other portion into a small bottle, cover the mouth of the bottle with a piece of moistened parchment paper and prick a few holes in it with a needle; now stand the bottle in a pan of water, put on the fire, let it slowly come to the boil, and keep it near the boil for five minutes, whilst hot tie another piece of parchment paper over the first one and then put the bottle beside the tumbler containing the other portion of the milk. If the conditions are properly carried out the boiled and sealed up milk will keep a year or longer without going sour.

SYMPTOMS.—The symptoms of biliousness may be divided into two classes, first those due to acidity of the stomach; secondly, those due to disturbance of the system itself. The symptoms due to stomach causes are acidity or risings of hot acrid stuff into the mouth from the stom-

ach, a feeling of nausea, and in many cases actual vomiting. Accompanying this is a belching of wind from the stomach, heartburn and sometimes hot and cold feelings all over.

The second symptoms due to the disturbance of the system are many and varied, but the following will be found to be those most often noticed. There is headache across the forehead, and often at the back also, low, miserable and depressed feelings, no energy, no desire to do anything, but a wish to be left quietly alone. There is often a pain behind the eyes, a general feeling of discomfort, a dislike to strong light, and to noise of any kind. Those who suffer more severely may have ringing noises in the ears, flashes of light before the eyes, or even temporary dimness of sight for a day or two, or only for an hour or more. Those who are subject to biliousness often see specks floating before the eyes even when well.

TREATMENT.—The symptoms usually last a day and then pass away, but in some few, they may last two or three days. These attacks are more distressing than dangerous, and if they become at all frequent, they make life almost unbearable. In acute attacks the quickest cure is to get the stomach to throw off the offending food. This is safest done by tickling the throat with a feather. The next best thing to do, is to dilute the contents of the stomach with plenty of warm or cold water. Two or three tumblers full of water will usually suffice to stop acidity. In severe cases the patient must lie in bed or on a couch in a darkened room, and be kept as quiet as possible. To rapidly recover I do not know of anything so quick as a starve, take nothing but a tumbler full of warm water every four hours until the worst symptoms are past, then take a small basin of wholemeal bread and milk sop, or a basin of wholemeal gruel, these must only be taken three times a day; if feeling faint, then a drink of water will quickly relieve this feeling. Lastly, adopt a simple diet and try to keep well.

N.B.—Bilious persons must carefully avoid certain kinds of food if they would keep well. The fatty foods must be carefully left alone, especially if they have been cooked, this applies to vegetarian fatty foods also. Next avoid as much as possible all the sweet foods or drinks, especially those made so by the addition of added sugar. Have three reg-

ular meals a day, drink sugarless cocoa rather than tea or coffee. Do not neglect daily exercise as this burns up food that would otherwise help to cause these attacks. Keep windows open a little night and day; have a weekly warm bath, and a daily dry rub with a rough dry towel. Avoid all intoxicants, also tobacco. Jam, preserves, marmalade, and fruit stewed with much sugar, or sweetened with sugar, help to bring on these attacks; as do pie crust, pastry, garden rhubarb, and unripe fruit stewed with sugar. Try to prevent these attacks coming on, as prevention is better than cure, and easy when your attention is called to those foods that are the chief causes of it.

PLETHORA.

This is a medical term meaning fulness, and is applied to that state of the system produced by over-feeding. Persons who suffer from it are known by their full necks, redness of the face and neck, a certain degree of stoutness, and all the signs of having lived well—as it is called. Persons who carry about with them all these marks are envied by some, and in many cases are considered pictures of health. To the critical eye of a doctor these marks are well-known signs of disease. It is from this class we get most of the cases of plethoric disease (*i.e.*, disease due to over-feeding and drinking). Such diseases are gout, kidney disease, stone in the bladder, heart disease, cancer, and apoplexy. In this class of persons are found the cases of sudden death the public so often read about in the papers. We hear of so-and-so being in the best of health one day, and a few days after he is dead ; or we hear of sudden deaths in persons who looked remarkably well quite to the day of their death. These have no reserve vitality. If they should be exposed to the depressing influence of a chill they may get a severe attack of pleurisy, or an attack of inflammation of the lungs or bowels, and die. An ordinary person in a fair state of health, if exposed to the same chill, would have had a cold and nothing more. This state is brought about by eating too much food (*i.e.*, eating more than the system can burn up or use). Alcohol in the form of beer, wines, or spirits, helps to induce it, since it causes waste to be retained in the system. Want of exercise, bad air, and the daily use of tobacco all tend to aggravate this complaint. The rational cure for this state is to cut down the excessive foods and drinks, and to obey all the rules of health. Meat should be indulged in not more than once a day, alcohol should be stopped entirely, tobacco given up, daily exercise taken, and a Turkish bath had fortnightly. Attention to these rules will cure in a period of six months. 2

A commoner kind of this complaint is seen in every-day

life, and is felt more or less by all. I refer to the complaint known as the dumps, blues, being hipped, depressed, &c. Some call it the liver, others say they are nervous, some call it indigestion, whilst some put it down to general or nervous debility. The generality of people say they are out of sorts. It is induced by over-feeding, or by want of exercise and fresh air. Waste matter is retained in the blood and they are made miserable. Everything seems to have gone wrong, and future prospects look very dismal. They take a morbid view of life, wonder why they were born, and think it would have been better had they never lived. To these mental troubles are added bodily pains. They ache all over, have pains in the back or in the right shoulder, up the neck to the back of the head, the head feels sore, and the eyes ache. They have no energy, they feel too tired to walk, and cannot concentrate their brains on any mental work. They want to be alone. If a friend drops in and engages their minds on some lively topic it banishes this feeling for the time. It is whilst in this state that many persons commit suicide. I have known a lady start off to drown herself whilst in this condition, but the exercise necessary to get to the water, which was a couple of miles away, took away the low feeling, and she returned home cured for the time. Persons who are troubled with these symptoms should live very careful lives. They should eat fish or flesh very moderately, have three meals a day only, and stop at the first feeling of satisfaction. The bowels must be regulated by the fruit, vegetables, and brown bread. Exercise must be taken regularly. When an attack comes on, the quickest and safest cure is to miss the next meal and have a good walk. The walk acts as a charm. One may start out looking and feeling miserable, and come in cheerful and make every one else feel so. Try this simple remedy and you will be surprised how well it acts.

ECZEMA.

Eczema is the commonest of all the skin diseases, and in some families there is a constitutional tendency to it. It most frequently attacks the young, but no age is free from it. It is more common in winter than in summer, because in winter people get less fruits, vegetables, and green stuff; take less outdoor exercise, and do not get as much pure air as in summer. Some few have it worse in summer. These eat the same quality and quantity of food all the year round, and take little exercise or pure air at any time. In summer they require less food than they eat, and the excess makes their eczema worse. Eczema may attack any part of the body. No spot is free from its invasions, but irritation of any kind will determine its locality.

CAUSE.—The causes of eczema are many, and may be briefly said to be all causes which supply the system with more material than it can get rid of, or which causes waste to be retained. The artificial causes are chiefly the use of alcoholic drinks, as beer, wines, or spirits; next, but in a smaller degree, the use of tobacco. Among the natural causes we find excess of food, or wrong kinds of food play a most important part. Excess of food means more than the body requires. This excess has to be got rid of, and is the cause of much disease. The wrong kinds of food are much flesh foods, sugar, honey, or fat. Want of exercise, deficiency of fresh air, and not keeping the skin pores open, play an important part. We find that persons who eat well, and who exercise freely, bathe often, and breathe plenty of fresh air, suffer less than those who eat well, but who are indolent, take little fresh air, and rarely bathe. Thus eczema is really a warning that we are not living properly.

SYMPTOMS.—Eczema may be roughly described as a cracking of the skin of any part of the body, with the ex-

udation or weeping of a serous fluid. This may form crusts or scabs. It is attended by more or less inflammation and a thickening of the skin or tissues. This mild inflammation gives rise to itching, and there is a constant desire to scratch the part, which then makes matters worse. If the system is in bad condition it may lead to the formation of ulcers. Eczema has various names according to the part it attacks. In children it often attacks the head, and is then known as eczema capitis, or scald head. In adults it most often attacks the leg proper—not the thigh, —or the forearms and hands. When it attacks the parts around the seat it is called pruritis ani. An eczematous leg is red, painful, covered with a dull red skin, cracked in places, and in some places exuding a clear fluid; small ulcers may be seen as well. It itches very much, and prevents the person from taking much exercise or from sleeping well. It may last for years unless proper dietetic and hygienic rules are followed. One of my most successful cases had been troubled with it for twelve years, and another one had it four years. When it attacks the hand it forms a very rough horny skin on the inside of the hand. This soon cracks, itches, and becomes painful. The natural creases of the fingers are usually the seat of cracks or fissures, and the hand looks very unsightly. The person who has this horny condition of the hand may be engaged in mental work all day. Two well marked cases of this complaint that I recollect were in patients having little physical labour, one was a clerk and the other a draper.

CURE.—The cure is simple, easily carried out, and sure. In the first place, tobacco and stimulants must be given up. The dinner or supper beer, or the wine and spirits, must be stopped, and the pipe put out for good. Next, proper food must be taken, wholemeal bread must be eaten instead of white, fruit and vegetables must be taken daily, and fresh fruits must be preferred to dry fruits. Much fish, flesh, cheese, eggs, pastry, sugar, honey, or cream must be avoided. Lean meat or fish once a day is all the meat food that must be eaten, and in bad cases flesh meat must only be eaten every other day. Bad cases of eczema can often only be cured by a bread and fruit diet; 6 oz. of dry wholemeal bread, 6 oz. of fresh raw seasonable fruit, and a cup of milk and water or sugarless cocoa must only

be taken at each meal. This diet must be persevered in until a cure is affected. Pork and veal must be banished. Exercise must be taken daily. Ladies should learn to walk four or six miles a day, whilst men may walk from eight to twelve. Fresh air should be had whenever possible ; and the skin should be kept open by a daily dry rub and a weekly hot bath. These means, if properly carried out, will quickly cure. Beware of drugs, they do not cure, but produce other diseases as well. I have some strong words to say about drugs ; one case of eczema I saw had been treated with arsenic until the nails dropped off. Others have injured their stomachs and intestines by the arsenic or mercury taken, and will require many years of careful living before they can get their systems into good health again. Keep the affected part as dry as possible, do not allow water to touch the part. If the irritation is great, a little unsalted lard may be rubbed on the part.

PIMPLES AND BLACKHEADS.

Most persons are afflicted, at one time or other, with these unsightly eruptions, but they are seen most commonly soon after puberty. These blackheads, pimples, and some other eruptions are classified by those learned in skin diseases under the head "acne."

SIMPLE ACNE.—This first shows itself as little, slightly raised spots, in the middle of which a small point of matter gathers. There is a little irritation whilst it is coming. It soon bursts, a little scab forms, drops off, and leaves a small red stain. This is seen on the cheeks, forehead, near the angle of the jaw, and on the chest and back. As one crop dies away, another forms, and so the disease is kept going for a long time if the causes which allow it to appear are kept up.

INDURATED ACNE.—In this variety the spots are larger the area of redness greater, and the duration is longer; and when they burst may leave behind them a small scar. This variety is seen most on the back and the face.

ROSE ACNE.—This variety is commonly known as "grog blossoms." It affects the nose chiefly, then the cheeks and forehead. It is seen more in women than in men, and in drinkers rather than in abstainers. It is always made worse by exposure to a keen wind, to the sun, or a warm fire, and hot fluids and foods increase its violence, as will also mental emotion.

ACNE PUNCTATA.—This variety is known as "blackheads." It looks as if small grains of powder had been stuck in the skin. It affects the forehead, sides of the nose, and is seen on the chest and back. Its course is usually a chronic one. If one of the blackheads be squeezed out, it looks very like a small maggot; it is in reality nothing more than pent-up skin secretion, moulded into this shape by the little bag it is in. It gets black on the

top from the dirt which is always settling on our skins.

WHITE ACNE.—This variety is known by the appearance of little oatmeal-like accumulations seen under the surface of the skin. It affects chiefly the face; and when pressed feels as if something hard were under the skin. The matter they contain is pent-up skin secretion. If they attain any size, pricking with a pin and squeezing out the contents soon cures them. The variety is sometimes a cause of worry to men; as it often appears on the scrotum, and then they worry over it, but there is no necessity to do so, as it is a harmless complaint.

OILY ACNE.—This kind is known by the escape of greasy matter from the skin. It usually affects the sides of the nose at the bottom. The skin is then a little redder than usual.

CAUSES.—All these varieties of acne are produced by wrong dietetic and hygienic conditions. They are seen generally about puberty, because then the mode of life changes. The boy often gives up his simple schoolboy life and diet, and takes to a sedentary occupation. He eats richer and grosser foods, keeps later hours, and may learn to smoke and take stimulants. The girl takes to some quiet occupation as dressmaking, and also eats richer foods. This I believe to be their origin, and not, as some make out, to vicious habits. Rich foods of all kinds are a great source of these complaints, such as fat meats, grease of all kinds, butter, fat, suet, cream, &c. Sugar also favours their formation, be it as sugar in jam, preserves, or sweet things, or too sweetened fluids and foods. Cheese, eggs, and honey must be used in moderation by those who wish to escape these diseases. Alcohol in the various liquors, as beer, wines, and spirits, lead to their appearance. These come on also from want of air, exercise, and bathing, as these burn up waste, and so prevent them. Various drugs will cause them, as bromide and iodide of potassium, salts of iron, &c.

CURE.—To promote cure all bad habits must be stopped. Tobacco in all forms must be given up. All stimulants, as beer, wines, and spirits must be avoided. Drugs (especially arsenic) must be shunned, even though they are called "blood purifiers." Next, good habits must be learnt. The meals must be limited to three a day; pig in any form

must never be eaten, meat must only be taken once a day, or even only every other day, and then not fat. I have noticed that vegetarians are much cleaner skinned and fairer of face than mixed feeders. Much grease must be avoided, be it in the form of butter, pie-crust, or suet dumplings; and take care also of fried things. Preserves, jam, honey, and all sweets are not good, as they contain too much sugar. Eat your fruit ripe and raw, because even stewed fruit is cooked with sugar and made too sweet. Avoid sweet puddings and sweet drinks, as tea or cocoa, and use as little sugar as possible with anything. Those who have "rose acne" must avoid all hot fluids. Exercise must be had regularly, six or eight miles a day must be taken by all engaged in sedentary or quiet occupations. Pure air must be breathed always, in the workroom, bedroom and sittingroom. Avoid unventilated places of all kinds. A weekly warm bath and an occasional Turkish one aids cure. Leave the spots themselves alone, but the white acne gatherings may be pricked and squeezed out if they get large, and the blackheads may be pressed out with a watch-key. The cure lies in correct diet, and obedience to the laws of health.

NERVOUSNESS.

Our nerves in reality are only as so many wires loading from the brain to the muscles, organs, and various parts of body. When a person says his nerves are out of order he is not speaking correctly. His nerves have no more to do with the cause of his symptoms than the telegraph wires have to do with the messages sent over them. The brain is in reality the centre from which all movements come and to which all sensations are referred. If I prick a person's hand with a pin, he will tell me he feels the pain in his hand ; but he does nothing of the kind. The pain is felt by the brain and referred to the hand. The nerve centres in the brain, which govern the movements of the hand, are at once on the alert and cause it to remove from the pin almost instantly. Prick a person, and almost instantly the part pricked is instigated by the brain to remove itself from the irritating substance.

Now for our subject. Nervousness has nothing to do with the nerves. It shows the whole system is at fault, and that the impure blood irritates the brain cells and produces so-called nervous symptoms. Impure blood or the presence of waste material in the blood causes other symptoms as well ; and thus anger, bad temper, spleen, &c., are all due to improperly constituted blood.

CAUSES.—The causes of nervousness are any habits which lower the tone of the body or any foods or substances which load the system with improper materials. Too much food, too little exercise, too little fresh air, and a dirty skin all tend to produce this complaint. The chief producers of it are substances which are not foods, but which are used by man in his so-called civilization as almost necessities of life. The most common substance which gives rise to nervous symptoms is alcohol in the form of beer, wines, spirits, or liquors. It first causes unsteadiness of the muscles or paralysis of the brain cells which govern them ; and if taken in sufficient quantity, and for long enough, it may produce the highest of all nervous states—insanity. Next in order comes tobacco. It causes palpitation, trembling, and unsteadiness, very quickly. Lastly, come strong tea and coffee. To many these are nearly as bad as alcoholic liquors. Tea and coffee are poisons, and cause a host of distressing symptoms. Bad habits and im-

proper substances introduced into the system are the great source of nervous symptoms.

SYMPTOMS.—These vary from mere trembling to madness. Thus, after drinking tea, a person may feel more or less nervous, does not like to speak to anyone, cannot look anyone in the face, and feels as if he would like to be left alone. Higher symptoms are seen when a person starts at any sudden noise, as a knock at the door. He has also strange forebodings. He feels something dreadful is going to happen to himself or his friends. He worries and fidgets over little things, wonders if he has fastened all the doors at night, and is not sure if he locked the safe. Others, again, are afraid to cross the street for fear of being run over. Many will not ride in a cab or omnibus for fear the horses should fall, and the idea of a railway journey is terrible. Business men will fear bankruptcy, failure, or some such mishap ; whilst professional men fear a decline of work, loss of social status, &c. In some this feeling of hopeless ruin and misery reaches such a pitch as to occasion suicide. Other symptoms are starting of the muscles, twitching or jumping in the sleep, or even mild convulsions.

CURE.—Cease to do evil, learn to do well. Do not overeat. Too much food causes nervousness ; limit the breakfast and tea meals to six or eight ounces of brown bread, with fruit or green stuff. Take an average dinner. Avoid suppers and snacks between meals. If you smoke stop doing so, and make up your mind that you cannot afford to injure your body for a mere habit. If you take the seductive glass of liquor try to give it up ; and the sooner you do so the sooner will you feel a new life never before dreamt of. If you are fond of strong tea or coffee, use weak tea or coffee instead. If you are a very nervous subject, give up tea and coffee entirely and drink cocoa, milk and water, lemon water, or some simple drink in their place. Then to get rid of waste material and tone the system take two hours regular daily exercise, breathe fresh air always, and have a daily sponge down. Avoid all drugs and medicines, as these are certain to produce nervous symptoms. If you carry out these rules you will not know that you have any nerves, but will enjoy life to the full and be free from anxious forebodings.

AUTUMNAL DIARRHŒA.

At the time when fruit is ripe and plentiful a good many cases of this complaint are seen. That ripe fruit plays a slight part in the causation of this disease there can be no doubt, but it is not the great cause as I shall show further on. When persons eat fruit rarely or sparingly, a free use of it will probably cause a loose condition of the bowels. But anyone who eats fruit freely will rarely suffer from this complaint. The fruit that most frequently causes diarrhœa are plums with dark skins. The skins of these fruits contain a bitter principle which acts on the intestinal mucus membrane as an irritant, and causes looseness of the bowels. In constipation the value of stewed prunes is well known; and prunes are simply dried plums. A more prolific source of diarrhœa is unripe or unsound fruit. , Fruit that is not thoroughly ripe should be cooked before eaten, whilst over-ripe and decaying fruit should be thrown into the dust bin. The commonest cause of diarrhœa is a heavy meat meal at supper time. This complaint usually begins in the small hours of the morning, when the person is awakened from a troubled sleep by pain in the bowels and a general feeling of illness. After a little time diarrhœa sets in, and may be accompanied by sickness; this may last for some hours and considerably reduces the strength. Food, or anything warm, only makes the case worse. Diarrhœa is often caused by meat, as all flesh quickly undergoes putrefaction, and sometimes bodies of an irritant kind are formed which set up diarrhœa. Excess of food of any kind, especially in warm weather is a frequent cause of diarrhœa. In children diarrhoea is nearly always caused by errors in diet—by giving too much or too rich food.

TREATMENT.—The cure is easy, and if the case is taken in hand early enough the attack is soon stopped. In the first place rest lying down in bed, or on a couch is of great value. The person should also endeavour not to go

to stool more than he can avoid. Hot fomentations, hot flannels, hot bran, or linseed poultices may be applied over the stomach. The food must be of the simplest and nearly cold, such as arrowroot, sago, tapioca, rice, and milk. It may be given every three or four hours. The quickest cure is to give nothing but milk and barley water—a glass-full nearly cold every four hours until the diarrhœa stops. Then nearly cold bread and milk may be given, and in a couple of days the ordinary diet may be resumed. The quickest cure is to give the bowels rest, put no food into them, and the inflammation quickly subsides. No drugs are required. The thirst which usually accompanies this condition may be relieved by small sips of cold water or by sucking small pieces of ice.

COUGHS AND COLDS.

Autumn and winter are the seasons for coughs, colds, influenzas, and all chest complaints. You can scarcely go into a house without meeting someone who is coughing, sneezing, blowing his nose, or speaking hoarsely. In some houses there are graver complaints, and persons are ill in bed suffering from pleurisy, bronchitis, or inflammation of the lungs. Such diseases are not usually seen among animals in a natural condition. How comes it then that man suffers so much from them? To me the answer is easy. I reply at once that they are produced by impure air. Let us compare the habits of the same people in summer and in winter. In summer we find they go out daily, often take walks, or sit on the lawn, or in the garden, and take their work with them, or they may witness cricket or lawn tennis matches. They also ride, drive, and are much outdoors. Their sitting-room windows are mostly open all day, and their bedroom windows a little at night, and they get plenty of fresh air all over the house. In winter they do not go out more than is necessary, the daily walk is stopped, there are few rides or drives, or only in closed carriages. The cold air is rigorously excluded, windows are shut, and sand bags are used to keep out the cold air, doors are closed and made to exclude air by means of list, and even mats are put at the door bottom to prevent the air coming in that way. The ventilators, if there are any, are closed; the bedroom window is kept shut, and this room is in some cases warmed by a stove or lamp which vitiates the air. In a moderately sized sitting-room you will find five or six persons round the fire, with three gases burning, and as each gaslight consumes as much air as three persons, we can easily understand that the air must

soon become foul. Many persons sit in this room from 9 a.m. until 11 p.m., rarely going out. They then retire to their bedrooms and sleep shut up in these until morn. This process is gone through from the first approach of winter until spring. Only the young folks rush off to skate or play football. If we feel cold, instead of warming ourselves by exercise we rush off to the nearest fire and warm ourselves by it. Now I say positively that our coughs, colds, bronchitis, etc., are not produced by the cold air, but by the bad air we breathe. For we find rooms heated as warm as they were in summer, and yet the inmates are always suffering from colds. On the other hand, we find persons living almost entirely out doors and never having coughs. Also we notice that those persons who look upon fresh air as a necessity, and have it always in their rooms by night and by day, rarely ever suffer from a cold, and only then from breathing the bad air of close rooms, unventilated churches or places of amusement. To know if a room is fit to be in, notice the odour. If one comes out of the open air and finds a room smell close, then the air is bad, and unfit to breathe. How many persons can say that their rooms are always fresh? I can, for I know the value of pure air. Having got colds, how are we to get rid of them? By at once following the advice given to prevent them. Instead of stopping indoors to try to cure them we must go out in the open air as much as possible, breathe through the nose, have the sitting-room and bedroom windows open a little, and assist the lungs to throw off the disease by making the skin act with warm baths. If a cold is caught, its severity will depend on the state of the system at the time. If the system is in a good condition the cold is soon thrown off; but if not, it may turn to a pleurisy, bronchitis, or inflammation of the lung; or if neglected, and bad habits continued, it may end in consumption. Coughs and colds are best left alone, and in future we must avoid the cause which gives rise to them. Most people reading this will think I am giving untrustworthy advice, but experience and better knowledge will teach them that I am advocating the best and quickest mode of cure. A tickling cough may often be relieved by sucking a lemon drop, a jujube, or a currant lozenge. Pleurisy, bronchitis, inflammation of the lungs, and con-

sumption, must all be treated by fresh air if successful cures are desired. Cough mixtures, expectorants, narcotics, etc., should never be used, as they are poisonous, and always make people worse. But warm bathing, exercise, fresh air, and plain food, as in No. 3* diet, are safe and permanent ways of curing. Gruel at bedtime, linseed tea, etc., are modes of relieving the system by perspiration; but a warm bath is more efficacious.

* See Appendix.

CHEST COMPLAINTS.

Chest complaints or diseases connected with the breathing apparatus are among the commonest of diseases. All of us have suffered at one time or another from some of these ailments, which arise from impure air. It is calculated that one out of every five persons in this country dies from disease of the respiratory or breathing organs. With a little care and attention we can banish nearly all these diseases. We may certainly do away with the severer forms. In many persons influenza is the first complaint that comes through breathing impure air. If the air constantly breathed is bad, the chronic form of a cold in the head arises. Sore throat, quinsey or enlarged tonsils come from the same conditions. If persons breathe bad air and eat wrong foods they may get bronchitis ; that is inflammation of the bronchial or breathing tubes ; pleurisy, that is inflammation of the external covering of the lung ; laryngitis, that is inflammation of the throat, and often lose the voice for a time ; or congestion or inflammation of the lung itself. In children, inflammation of the vocal cords is called croup, and is very dangerous. Asthma is due to spasm or contraction of the bronchial tubes. Consumption is a state of chronic inflammation, and instead of the lung recovering, as it should, it breaks down and wastes away. Pleurisy may end in matter being thrown out, or in water being exuded. This last condition is known as hydro-thorax or water on the chest. Diphtheria and whooping-cough are infectious complaints, due to breathing impure air laden with the infectious germs of these diseases. All these complaints, from the mildest to the most severe, depend on this fact that good air has not been breathed. I can safely assert that, were fresh air always breathed, these chest complaints would be unknown did we even live wrongly with regard to food. We know that sitting in draughts, going from a warm room into the cold air, getting chilled after perspiration, &c., are always supposed to give these

complaints, but the observant physician finds other causes besides these, the chief one is that the person affected does not breathe enough pure air. In former articles I have shown the influence of bad air on the lungs and the system, and how chest complaints are more common in winter than in summer, because we do not get so much fresh air in cold weather as we do in warm weather. Catlin says that in winter the North American Indians live in tents, and these being unventilated many chest diseases arise. As soon as spring comes, the Indians take to camping out and living in the open air. The result is that they lose their chest complaints as if by magic. I am continually advocating the importance of always breathing pure air. Do not be content with getting it during the day, but have it at night as well. Night air is no more injurious than day air, being cooler many are afraid of it, but nose breathing thoroughly warms it. Bad air breathed at night gives rise to lung disease ; this fact explains why we sometimes see country people die from consumption. These people may breathe good air all day, but, sleeping in small, unventilated bedrooms, they may start into existence this often fatal disease. Looking over my consultation book, I find that every person who has come to me suffering from any chest complaint breathed bad air—sometimes all day or all night but most often both night and day. Milliners, tailors, and all those who work in badly-ventilated rooms, suffer continually from chest complaints, as do all who work in crowded workshops or in badly-ventilated and gas-lighted rooms. At one time our Army lost a great number of men from lung diseases, but now, by means of larger barracks and better ventilated rooms. these complaints are almost done away with.

PREVENTION AND CURE.—An ounce of prevention is better than a pound of cure, so let me advise all persons who are susceptible to lung troubles, or who are weak at the chest, or who have consumption in the family, to breathe as much pure air as ever they can get. Consumption can be prevented if this rule is carried out, and instead of being our curse—for it is still called in Italy the “English disease”—it will be banished from our midst. Next as to cure : Live as nearly as possible by the rules I have laid down in former articles on correct living, and at once start

a course of pure air treatment. Learn to breathe properly, i.e., through the nose, as the air is then warmed, moistened and filtered before it reaches the lungs. To the narrow-chested or weak-chested I cannot suggest a more invigorating practice than that of deep breathing. To do this stand up, lift the head up, throw the chest forward, rest the hands on the hips, close the mouth, slowly fill the lungs with air, and slowly let it out again through the nose. This exercise should be practised three or four times a day by weak-lunged persons, and about six deep breaths taken one after the other each time. This fully expands the lungs, purifies and oxygenates the blood, and does more good in relieving chest complaints than any known drug or invention. Many quack inventions depend for success on the fact that they make you take deep breaths. To ladies I give one fact, viz.: that a women without corsets can breathe one-third more air than one who wears such chest-narrowing appliances.

DEAFNESS.

Deafness may be defined as the absence of the sense of hearing. It is not a disease itself, but only a symptom of some disorder of the system. Put the system under proper conditions, and if the hearing apparatus is perfect and the disease is not of too long standing it will be cured. Deafness may be congenital or acquired. Congenital deafness is seen in those who are born deaf; they have some deficiency in the hearing apparatus or in the brain cells which receive the sounds, and so they cannot hear. Deafness cannot be transmitted from parent to child, as deaf and dumb parents have children who can hear as well as others. In the same way persons who become deaf from any cause do not have deaf children. There are on record some few cases of children born deaf recovering their hearing, but they are rare. The commonest forms of deafness are the acquired ones, and these are brought on by wrong hygienic conditions. There are many temporary cases. A person may become suddenly deaf for a week or a month, and as suddenly recover his hearing. The commonest way is to gradually lose the sense of hearing, whispers cannot be heard, then voices are not heard if the speakers are some little distance away; lastly ordinary conversation becomes indistinct, and if the patient is not spoken to in a loud voice he cannot hear. This may end in complete deafness if the causes which give rise to it are not removed. We often find persons deaf with one ear, but not with the other, or one ear may not be so bad as the other, though the hearing of both ears is impaired. One of the first symptoms of deafness besides the slight dulness of hearing is noise in the ears. Thus ringing in the ears, the sound of waves on the shore, the rushing of wind or of water and like sounds are continually heard. At the same time the ears will often crack when blowing the nose, or while swallowing. The simplest form of deafness is that produced by the accumulation of cerumen or wax in

the ear. This is easily cured by syringing the ear with hot water once a day for a few days—the water being as warm as the tip of the little finger can comfortably bear. Eczema of the auditory canal, if chronic, is attended with thickening, closure of the canal, and consequent deafness. This must be cured by right living, which will cure the eczema. In children a common cause is inflammation of the tympanum (or inner ear). Matter forms, pierces the drum of the ear, disorganises the ossicles or little bones of the ear, and so permanent deafness results. If the drum alone is perforated, hearing may still remain. This gathering of matter is often seen after scarlet fever or small-pox. If all infectious fevers were treated with two warm baths a day, there would be few cases of deafness from such causes. I treat all my patients thus, and very, very rarely find deafness follow.

In adults bad habits are the commonest cause of deafness. Such habits are smoking tobacco, drinking stimulants, over-feeding, taking insufficient exercise, breathing impure air, and not keeping the skin-pores open by proper baths. All these habits produce a disordered system, and deafness may result. The difficulty of hearing, and the noises heard are due to blocking up of the eustachian tubes. These tubes lead from the inner ear to the throat. When the throat becomes inflamed these may become blocked up and so temporary want of hearing is the result. If the system contains much waste material the inflammation of the throat may become chronic, spread along the eustachian tubes, block them up, and so produce chronic deafness.

The use of the eustachian tubes is to equalise the pressure of the air on both sides of the ear drum. If these tubes are blocked up air cannot enter the inner ear, the drum is pushed in from the outside, the small bones of the ear cannot vibrate, and sounds are not conveyed to the brain. If this condition of things is allowed to go on, the bones all unite into one mass, the deafness then is of long duration and hard to cure. The noises one hears are said to be due to the circulation of the blood, which can then be heard distinctly. Readers of my articles on "Air" will, no doubt, recollect that I said that impure air always gave rise to some disease of the respiratory or

breathing organs. Among those named was sore throat, or inflamed throat. Now an inflamed throat is one of the causes of a blocking up of the eustachian tubes, so bad air must be put down as one of the chief causes of deafness. Tobacco produces a well-marked inflammation of the back of the throat, and is thus a powerful aid in causing deafness. Alcohol in the same way inflames the throat, and so helps to produce this complaint. Deficient exercise, want of fresh air, and absence of bathing, with over-feeding, flood the system with waste material, and if inflammation arises anywhere this waste tends to make it chronic. Thus we see how an overloaded system and a slightly-inflamed throat will give rise to deafness, and as long as this overloaded state of the system continues we must expect the deafness and noises. Ear specialists dilate the eustachian tubes and pass air to the inner ear. This causes temporary relief, but unless the habits be changed as well no permanent relief can be expected. To cure this complaint bad habits must be discontinued. Tobacco, alcoholic stimulants, and even tea and coffee must not be used. Eat only as much food as the system daily needs ; take two or three hours' daily in the open air ; keep the windows open never less than two or three inches night and day, and wide open in summer ; have a daily dry rub and a weekly hot bath. Keep out of close rooms, crowded places and all unventilated places of worship or amusement. To aid the cure twice a day hold the nose with one hand, and then fill the lungs with air, close the mouth and try to blow the nose. This puffs out the cheeks, and forces air along the eustachian tubes, making the ear crack, as it is called. This often gives relief for the time, but can only do lasting good when the other rules are observed as well.

Enlarged tonsils blocking up these tubes can be cured by breathing pure air night and day. Polypi growing from the drum or passage obstruct the conveyance of sound, and must be taken away, or cured by careful living. We sometimes see the nervous structure become disorganised, and then the worst form of deafness arises. This is seen when deafness arises from loud explosions near the ear, as among artillerymen and among men who work in foundries where they have to hear or be near much hammering. Boxing a child's ears sometimes produces this state. This practice is

a very bad one. The deafness of old age is often due to these nervous changes. Some drugs cause deafness ; thus quinine, if given in large doses and if long continued, causes deafness, and salicylic acid does the same.

To conclude, I ask all my readers who suffer from any difficulty of hearing to live hygienically, and they will get the best results. Steer clear of those people who promise to cure you by drops, artificial drums, &c. They only take your money and leave you as bad as when you first consulted them.

The artificial drums so largely advertised are useless in nearly every case, and are means of obtaining money from hopeful and ignorant persons. Never buy such appliances unless you find by actual experiment that they aid you. Be sure to try them before parting with your money, or you will repent it afterwards.

VACCINATION.

This is a subject of vital importance to every parent, as the law of the land says you must have your child vaccinated at the age of three months, unless you can give a good reason against it being done. This reason must be a physical one, and not a religious or conscientious one. You can defy the law if you can afford to pay the fines. I am not a believer in vaccination or inoculation of anything. I do not believe in the doctrine of filth. I believe in the plan of hygienic living, in proper sanitary laws, and then I can set at defiance disease and premature death. To go into the history of vaccination would take too much space, but a few facts on the subject may be of use to my readers. The vaccinator assumes, in the first place, that every person who is not vaccinated must take, or is liable to take small-pox. He assumes, secondly, that vaccination is a protection against small-pox. These are the two articles of the vaccinator's creed. I deny both these assumptions. I deny that small-pox is a necessity, and I cannot see—from statistics or otherwise—the protective power of vaccination. Small-pox is a germ disease, it breeds among filth, thrives best in dirty slums and overcrowded streets, and only attacks those whose systems are in a bad hygienic condition. An epidemic of small-pox does not increase the death rate, but on the contrary, slightly lowers it, and the deaths from cancer and consumption are said to be less numerous for a year or two after its visitation. It is also a disease of childhood like measles and scarlet fever. Its attacks are seen most in poor parts of a town, and not in the healthy suburbs. When proper sanitary conditions are observed in a town, small-pox will never arise, and if it is imported isolation and proper disinfection will quickly stamp it out. If all our towns were in a good sanitary condition, and if every case of small-pox were isolated as soon as discovered, a few years would see the end of small-pox.

The experience of hundreds of medical men has proved to me, and thousands of others besides myself, that vaccination is not a protection against small-pox. From its introduction, at the beginning of this century, up to now there has always been an outcry against it. Some of Jenner's own cases took the small-pox, and the thousands of cases of small pox that have occurred, in well vaccinated persons since the introduction of vaccination, show that it is not the invaluable and infallible specific that Jenner said it was. The decrease in the death rate from small-pox is due to improved sanitation, and to better and purer food, and less bad habits. All the infantile diseases have decreased from decade to decade but small-pox, and this is kept alive, I believe, by vaccination.

If vaccination is not beneficial then, is it injurious? It is undoubtedly, and has hurried thousands of children to the grave. Vaccination produces a well marked disturbance of the system, and erysipelatous inflammation where the matter was inserted. In most this passes off and the child is well in about a fortnight after. In some it causes enlarged glands and suppuration in the armpit; and sometimes it causes a well marked attack of erysipelas of the arm and the death of a large piece of skin. Occasionally it causes an inflammation of the cellular tissue under the skin, which spreads from one part of the body to the other, and usually finishes up at one or other ankle in a nasty sore. Diarrhoea, convulsions, inflamed lungs, and inflammation of the brain are other diseases it induces. Various skin diseases are brought about by it, notably eczema. But the worst of all diseases inoculable with vaccine matter, is that most unpleasant one, syphilis. This has been inoculated so often now that it is one of the terrors of vaccination. Calf-lymph does not carry syphilis, but it produces other evils. Having now said that vaccination is not a protective against small-pox, and having seen most of the ill effects I have described, I must leave it to parents to protect their children as best they can, and let electors change the disease-spreading law as soon as possible. The sooner the vaccination laws are abolished, the better it will be for the health of our race.

THREADWORMS.

These small parasites infest persons of all ages, from the child of a few months old to the aged person of ninety. Threadworms vary in size, the male is about the eighth of an inch long, and the female from a quarter to half an inch long, and about as thick as a piece of ordinary sewing cotton. The part of the bowels that they inhabit is the large gut, and lower bowel, and consequently they often wander from the bowel into the world. Their presence does not show that the child is in poor health, but it shows that the eggs have in some way or other been taken into the mouth and swallowed, and once having got a lodgment they are difficult to get rid of, as the person who has them keeps infecting himself, and may also infect other members of the family.

CAUSE.—There is only one cause for this condition, and that is that the eggs are swallowed. A person who is troubled with these worms has often dozens in his inside. The way these worms spread is usually this:—One person of the family—usually a child—catches them from some one else by swallowing the eggs. These eggs are hatched in the lower bowel, and develope into full-grown worms. The worms then lay eggs, and it is these eggs that keep the complaint going. The eggs may escape from the fundament to anything near it. Say they get on to the bed-clothes, then the heat of the body dries them, and, being very minute, they get wasted about by turning in bed, may get into the mouth and be swallowed, and so keep up the complaint. More frequently they are deposited near the anus, and are rubbed off. As there is always more or less itching of the seat when these worms infest anyone, the patient scratches himself, and gets the eggs under the nails of his fingers. From the fingers they are easily transferred to bread, fruits, and other food. If the person who has them is young,

they may be carried direct from the fingers to the mouth, and so keep up the breed.

SYMPOTMS.—These vary according to the age and conditions of the persons attacked. The symptoms are always worse in the delicate than in the strong. In the strong grown-up person they may only cause a little irritation at the seat, or he would not know he had them if he did not see them on his clothes or in his motions. In the female they may wander into the genito-urinary tract, and there sometimes cause leucorrhœa or irritation. In children they cause restlessness, nervousness, and irritability. They may also give rise to twitching of the muscles of the legs, or of the whole body, to St. Vitus' dance, to convulsions, or epileptiform attacks. Whenever a child scratches itself much, and shows signs of being fidgetty, these pests should be suspected. There are also more or less obscure pains at the lower part of the belly.

TREATMENT.—The treatment may be preventive and curative. It is said that if the preventive alone is practised, the worms which are in the bowel will get passed away with the motions, and so end the complaint. The preventive treatment consists in carefully washing all green stuff, salads, and vegetables that are eaten raw. When these pests are noticed the utmost cleanliness must be observed. The hands must be washed before all meals and the nails cleaned, and if the children have them do not let them touch food with their hands ; never kiss their hands, nor put them to your mouth. For the same reason the bed and body linen should be changed weekly, or even twice a week—that removed being put into boiling water, and boiled for a quarter of an hour. The curative treatment consists in purgatives and in the use of the enema. The purgative treatment only brings numbers of them away—any mild purgative may be used as castor oil, senna, &c. Injections are best given with Higginson's Enema Syringe. Salt water only may be used as an injection, or an infusion of quassia chips. Dissolve a quarter of a pound of salt in a quart of water and use ; or boil an ounce of quassia chips in a quart of water, allow to cool, strain off, make it measure a quart, and then add two tablespoonsful of salt. When using the solution, have it lukewarm. In introducing the syringe up the fundament, oil and grease it and push it up

backwards. This may be used about twice a week for a month, and then stopped. The person affected should bathe the fundament with salt water night and morning, and after every action of the bowels. A little cold cream may also be smeared round the fundament at night to prevent the eggs getting into the bed. The curative means must be carefully persisted in for at least 15 days, as it takes this length of time for these little pests to be hatched from the egg.

ROUND WORMS.

The round worms which infest the intestines are not unlike in appearance the common round worms of our gardens. The male is from four to seven inches long, and the female nine to fourteen inches in length. They gain entrance into the intestines usually through the medium of water, or less commonly by means of raw vegetables. Thus, if a person has mature worms inside him eggs are being constantly passed by him. These get into the water and are swallowed, or are scattered over the land, and are eaten when we eat improperly washed or uncooked vegetables, or green stuff. The most common way is by means of water. In country places where waterclosets are not plentiful and where streams are many, these eggs find their way into the water. Here they may live for months, and at last get swallowed. In country places, too, the people very often depend on a brook or stream for their water supply, and as this has come past many houses it is almost sure to contain more or less of the eggs of these worms. Children who are thoughtless and ignorant are usually most infested with them, because when thirsty from exercise, &c., they drink any water they can get. Older people occasionally get them because they drink unfiltered or unboiled brook or stream water.

SYMPTOMS.—In this country we usually find only one or two worms in the intestines, but a dozen or more are sometimes seen. There is pain most often felt in the region of the umbilicus or navel, and there are also colicky pains, itching of the nose, nausea, vomiting, or diarrhoea. In children who have the nervous system highly developed, we find many symptoms caused by the presence of these worms. These symptoms are restlessness, convulsive twitchings during sleep, cramps, grating of teeth, fits of an epileptiform kind, eclamptic convulsions, *i.e.*, fits in which

there is a rigid condition of the whole body, chorea or St. Vitus' dance, hysteria, catalepsy, paralysis, loss of sight, deafness, mental defects, maniacal excitement, peevishness, low spirits, and a dislike to the mildest reproof. Sometimes by their irritation, they cause the child to wet the bed, whilst in older children they may give rise to irritation of the genitals and cause injurious practices. I have seen many cases of convulsions in children due to them, and when the worms have been got rid of by proper remedies, the convulsions have ceased. These worms often cause fits, as they give rise to pain in moving about the bowels; if they find their way into the stomach they cause nausea and vomiting. I have seen cases in adults of what might be called worm fever. There were all the signs of fever and stomach catarrh, which were relieved and cured by the vomiting of one of these round worms. In complaints of obscure pains in the abdomen, it is always wise to try the action of a worm killer. Children who wet the bed, grate their teeth, or who are irritable and peevish should be suspected of worms. In India it is said they are a cause of suicide, and that more than 60 per cent. of those of the natives who hang themselves have these worms in their insides. If a child passes a long worm it is a wise proceeding to give some medicine, to see if any more are left.

PREVENTION.—Never, under any consideration, drink ditch, stream, or brook water raw, and advise your children avoid the same. in travelling in countries where you must drink what you can get, carry a pocket filter and pass the water through that, or else boil it, and drink as tea or some other beverage. In the same way, if living in the country, and the water is of doubtful origin, filter it or boil it, and let your children always have a large jug of boiled water within easy reach. A little trouble in this way is repaid in the long run. If using green vegetables, such as watercress and salads, it is always advisable to well wash them.

CURE.—The cure is fairly easy, but must be carefully set about. The best poison for these worms is santonin, which can be got from any chemist's. It is a whitish powder, and must be used only according to the directions I give, otherwise it may produce unpleasant symptoms. We

must give the santonin to kill the worm, and try and not affect the system as well. This plan must be followed:—First night give a dose of castor oil, next day feed on slops, porridge, bread and milk, fruit, broth, spoon food. The same night give another mild dose of castor oil; and next morning, whilst the child is fasting, give a dose of santonin as below, mixed with a little sugar, and let the child have a drink of warm cocoa after it has taken the powder to help it down, and follow by another dose of oil two hours after, to bring away both the worm and the santonin. Children from two to four years old may have one grain; four to six years may have two grains; six to ten years may have three grains; ten to sixteen years may have four grains; whilst all above this age may take five grains. In some cases it may be advisable to give two doses, one dose one day, another dose in a week, but it must not be given too often or it may produce ill effects. Santonin may produce spasms, griping pains in stomach, and a little diarrhoea. If much is absorbed, it causes giddiness, mental confusion, and yellow vision, whilst the urine may become red. If the instructions about purgatives are carried out, and the proper dose given, no ill results are likely to follow. Keep the child also on slops a day or two after giving the powders to allay irritation of the stomach and bowels which may be caused by the purge and the medicine.

TAPEWORMS.

A tapeworm (a cestode entozoa) is an internal parasite, "strictly speaking, a tapeworm is a colony of incomplete individuals (called *zooids* or *proglottides*) arranged in single file, the uppermost zooid being transformed into an organ of anchorage, which is popularly called the *head* of the parasite" (*Cobbold*). The three common forms which infest man are *Tænia mediocanellata*, or beef tapeworm; the *Tænia solium*, or pork tapeworm; and *Tænia tenella*, or mutton tapeworm. There is also another one got from eating uncooked flesh of fish, whose name I know not. We may call this the fish tapeworm. It is not known in England, but not uncommon in Germany and Russia. A description of the commonest, the *Tænia solium*, will do for the rest, as the life history of the others is very like that of this worm. In the case of the fish tapeworm the eggs are swallowed by fishes, and the fish being eaten uncooked man gets this peculiar kind. The mature worm can only be got by eating imperfectly cooked flesh, *i.e.*, what is called underdone meat. In some parts of the world these parasites are more common than in others. Thus, in Abyssinia a man does not think he is healthy unless he has three or four of these, whilst in Greenland it is calculated that one person out of every seven has them. These people eat freely of uncooked fish and flesh, and so get these tapeworms. The life history of a tapeworm is very interesting. Let us take for an example a carnivorous animal which has the mature worm in its intestines. Joints are constantly being broken off and passed into the outer world; the tissues surrounding the eggs rot away, and the eggs are set free. These are blown about by the winds, or carried away and scattered broadcast by rain, and so get upon the grass, or into the water. Some herbivorous animal, as a sheep or a cow, eats the grass or drinks the infected water, and swallows some of

the eggs. In the stomach the shell of the egg is dissolved by the gastric juice, and the immature worm set free. It at once begins to burrow through the stomach walls and tissues, and lodges in the muscles, or it may get carried by the blood to the brain or other parts of the body. It then rests and awaits further changes. If the infected animal dies a natural death, the immature worm dies too, and there's an end of it. But if some animal eats the raw flesh, or if man eats it imperfectly cooked, the immature worm is taken into the stomach and at once begins its latter stage. It has four small hooks or suckers, by which it attaches itself to the intestines, and begins life on its own account. It may be an eighth of an inch long when it first is swallowed, but in a month or six weeks it grows to be twenty or thirty feet long. The head of the worm is only about the size of a pin head. Behind this come the various joints, increasing in size from the thickness of a pin up to the width of half an inch. This worm has no eyes, mouth, or stomach. It absorbs its nourishment by means of its suckers, and through its various joints. My readers must not imagine that it will consume a great deal of the food they eat, for it cannot. It is not, as many would think, a kind of internal tiger, consuming the food the person should have. Its wants are small and soon satisfied. Nor can it set up much internal pain if it is hungry, for it has not enough vigour for that. Each joint is hermaphrodite, *i.e.*, contains male and female parts, and so can reproduce by itself. A tapeworm then is, a series or chain of worms, each joint being a perfect animal, and capable of self reproduction. Each joint contains millions of eggs, so if only one or two eggs get swallowed the race is continued. Every animal that eats raw flesh has them.

SYMPOTMS.—There may be none, or the patient may suffer severely. There may be feelings of weariness and of lassitude. Grown up persons are said to suffer sooner or later if they have these parasites. The person may become anaemic, irritable, and restless at night. There may be head-ache, accompanied by vertigo *i.e.*, dizziness. The sight and hearing may become affected, there may be obscure pains about the body and itching at the nose and seat. In severe cases we find sympathetic irritation, and disturbance of the nervous system, such as epileptic fits,

paralysis, St. Vitus' dance, or hysteria. Convulsions, insanity, and mania or madness are on record as having been produced by these worms, but such cases are rare. As a rule, I think their presence would be unknown were it not for the joints seen in the motions or for the fact that occasionally the joints work their way out into the world. If a person has obscure symptoms of which he cannot tell the meaning, there is no harm in seeing if the motions contain any of the joints of a tapeworm. These joints may be an inch long, and a quarter of an inch wide, and not unlike a piece of tape. They rarely come away in single pieces, but half a dozen or more would be joined together, and form a piece of tape-like matter from three inches to a foot long. This is a sure sign.

CURE.—This is one of those cases in which I at present consider drugs are justifiable. I do not give the drug to affect the system, but to kill the parasite; that is, I use the drug as a poison, for so all drugs are; out of two evils I choose the lesser, and try to injure the system as little as possible. The instructions I give below must be carefully carried out if cure is desired. I have known persons have them for years, and try many remedies, including what I advise, yet they did not get cured because the other instructions were left undone. The cure consists of three stages:—1st, laying bare the worm; 2nd, poisoning it; 3rd, bringing it away. To lay bare the worm a purgative is required, such as castor oil or a black draught. This should be given at night. The day after, nothing but slops should be taken, such as milk, gruel, broth, &c. The second night another purgative is taken, and now the worm is laid bare in the bowels. To poison it, get this prescription made up. This is for a grown up person:—Etherial extract of male fern a fluid drachm, simple syrup an ounce, mix well. The morning after the second purge this should be well shaken and then taken, whilst the person is fasting. It causes more or less feeling of sickness. An hour after take a drink of hot cocoa, and three hours after a good dose of castor oil (about an ounce) to bring away the male fern and poisoned worm. The last motion should be received in a special receptacle, and the head searched for. If the head does not come away, even if only the head and an inch of neck are left, it will

grow again, and in a month may be as long as ever. When the worm is being expelled it should be drawn out gently and cautiously, so as not to leave the head behind if possible. The head is about the size of a pin head, and may be known by having little black spots on it. The pork tapeworm is harder to get rid of than the beef or mutton tapeworm, as the one got from the pig has a crown of spikes or hooks on its head which it fastens into the bowel, while the beef or mutton tapeworms have only suckers, and not hooks. If a person finds that a drachm of extract of male fern is not enough to destroy these worms, then he may try a drachm and a half, and even two drachms, but never more unless under medical orders. Again, if the first attempt to dislodge them is unsuccessful, then a month should be allowed to pass before another trial is made. In all cases the head must be expelled. If not found, and no more joints are seen in the motions in two months, then the parasite has been killed. Those who are away from a town, or in a foreign land, may try this, which is said to be good. Scald a teacupful of pumpkin seeds and remove the skins; pound the seeds up with a little honey and take fasting, a couple of hours after take a dose of castor oil as before. It is always advisable to live on slops a few days after these attempts, so as to allay irritation caused by the purgatives and drugs.

Moral.—Those who eat flesh must always have it well cooked, or they may get tapeworm. Vegetarians have nothing to fear from this particular worm, as they eat no flesh and so cannot get it.

SCABIES, OR THE ITCH.

The parasite which gives rise to this complaint is a small roundish insect, flat, and in shape not unlike a tortoise. The male insect lives near the surface of the skin; the female burrows down and lays from ten to fifteen eggs, which take about ten day to hatch. The mother dies after laying her eggs, but the young ones make burrows for themselves, and so keep up the irritation and the complaint. It is this process of tunnelling and of burrowing that makes their presence known, and they can work best when the body is at rest. This fact explains why they cause most irritation at night. The itch is a contagious disease—the female or young insects getting from one person to another. The period of incubation, or hatching, is from ten to twelve days, so when a person finds the symptoms of itch, he must calculate that he caught it ten days previously.

SYMPTOMS.—The person who has this complaint is troubled with an intense, and sometimes very pleasurable itching. In most cases it is annoying, and it usually affects the whole body. There is a more or less continuous itching, but it is worst at night, just when comfortably settled in bed. Arms, legs, and body itch terribly, and no relief is got except by scratching, and this is often carried on so furiously as to draw blood. The itch eruption is commonly first seen on the hands, as it is caught by shaking hands. If caught from a bed-fellow it may first appear on the body, arms, or legs. But wherever caught it soon spreads over the body, leaving no part free, but affecting least the head and face. The eruption may present two or three varieties. The pure eruption is like small pimples, irregularly dotted about the body, arms, or legs, and not in patches. These pimples have often little watery heads. Scratching causes each little pimple to have a very small scab of blood at the top, and so it looks different from the ordinary form. If the

constitution of the person is in a bad condition every little burrow may be the seat of a gathering, and thus the body may be covered with little spots of matter. In one case I saw erysipelas follow such a state of things, but such is rare. If the person is in good health these pests simply annoy by their burrowing causing more or less restlessness and uneasiness, and that is all. This is more a disease of the poor than of the rich, but still it is sometimes seen among the better classes. Whenever a person suffers from obstinate and continual itching for a long time, it is advisable to try the remedy for this complaint.

TREATMENT.—The cure is easy and sure if properly carried out. The first process is to wash the whole body with any simple soap—grown-up persons cannot use a better soap for the purpose than “soft soap.” This is too strong for children, and a milder soap must be used for them. Then, after thoroughly drying the body, well rub in sulphur ointment all over it. Sleep in a special set of things : sleep in nightshirt, drawers, socks, and gloves, and these should be cotton in preference to woollen. The ointment may be washed off next morning, and the second night go through the same process as the first night. This washing and rubbing in of sulphur ointment should be done three nights running, and this usually effects a cure. For safety’s sake use it also every other night for a week. The morning after the third inunction the body may be well washed and clean linen put on. The soiled bed and body linen should be boiled for a quarter of an hour and other clothes should be baked. This will kill any insects that may be left on the clothing. After this, if any spot itches it may be rubbed with a little ointment for the next few nights. The ointment must only be rubbed in for three days all over. If applied more than this it may set up an irritation almost as bad as that produced by the itch insect. For the benefit of country readers sulphur ointment is thus made :—Add two ounces of finely-powdered sulphur, or flowers of sulphur to a pound of lard, and mix thoroughly with a knife or in a mortar, or grind as painters do paint until properly mixed. Children under ten should have the ointment made only half strength.

TOBACCO.

Tobacco is the dried leaves and stalks of an American plant, the manufactured article having first been introduced into this country by Sir John Hawkins in 1565, and into France by Jean Nicot in 1559. Nicotine, the poisonous principle of the plant, derives its name from its French introducer. Tobacco rapidly exhausts the soil of mineral matter, as the tobacco plant requires much of this for its growth. Good tobacco contains at least two per cent. of nicotine. Virginian tobacco contains more than six per cent. Tobacco is now used by nearly all the peoples of the earth, and to give the results of a study of its action on mankind is the object of these articles. It must never be forgotten that none of the nations of antiquity ever used it, and that all the science, philosophy, and teachings of the ancient sages, heathen and Christian, were taught to disciples who neither used nor even knew of the existence of this foul poison. Nicotine—the poisonous principle—is, next to prussic acid, the quickest poison we have. One drop of it kills a rabbit in three and a half minutes, and a man has been killed by this poison in four or five minutes. A thirty-second part of a grain given to a man causes alarming symptoms, while a sixteenth of a grain produces bad effects for three days. A single cigar contains enough poison to kill two men. Children have been killed from using a well saturated tobacco pipe which they used to blow bubbles ; they absorbed enough of the poison from the pipe to cause death.

Cigarettes are the most injurious form of using tobacco, as so many are smoked in succession, and the smoker also often draws the smoke into the lungs, and so more of the poison is absorbed. Boys are also sufferers from cigarette smoking. Pipes are bad, especially when they become saturated with tobacco juice. Cigars are bad, and the last inch of them is the most injurious. To chew tobacco is bad, but one of the least harmful ways of using it, as in



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smoking the burning of tobacco introduces into the mouth ammonia and other injurious products of combustion. This latter fact shows that to smoke herb tobacco is not good. Snuff is the least harmful of all the ways of using tobacco, but it is the dirtiest ; snuff injures the membrane of the nose, and causes constitutional symptoms of tobacco poisoning. Tobacco was at one time used as a medicine, but it killed so many and so quickly that its use had to be stopped. In asthma its action is unreliable ; as a poultice it has caused death. Even habitual users of tobacco have killed themselves by using it immoderately ; men have smoked for wagers, and have killed themselves by smoking twenty pipes or cigars one after the other.

We will now study its effects on the various organs. The first indulgence in tobacco usually causes vomiting, purging, sinking sensations in the stomach, giddiness, weakness, cold shivers, and a great feeling of prostration. If its use is continued then it produces other well marked symptoms. The heart is an organ that suffers much ; tobacco causes it to enlarge, dilate, and the valves are so affected that they do not properly close. It so excites the heart that it greatly increases the number of pulsations to nearly double what they ought to be, that is on first smoking, and in seasoned smokers it always increases its action. In time, in consequence of this, it causes an irregular action of the heart ; one beat out of five or six being missed—if five or six beats were missed all at once we might die. It also causes dull pains in the heart region, and also palpitation. Users of tobacco suffer from rapid beating of the heart and palpitation or excitement more than those who do not use it.

Users of tobacco are very liable to suffer from anaemia, or bloodlessness, as tobacco causes dyspepsia, and then bloodlessness results.

The action of tobacco on the digestive tract is bad ; it dries the tongue, mouth, and throat, causes congestion of these parts, and also ulceration of them. Ulcers of the tongue, throat, and even of the stomach, are often seen in tobacco slaves, and caused by it. Smokers' sore throat is a well-known disease. Speaking, singing, and swallowing are interfered with by the use of tobacco ; the tonsils enlarge,

catarrh of the throat is set up, and smokers do not get rid of a cold so quickly as those who do not use tobacco. Tobacco causes more saliva to be poured into the mouth ; when this is spat out thirst is caused, and drink of some sort taken. Temperance reformers state that smokers break their pledge in greater numbers than do non-smokers. The saliva of smokers is not so strong as it should be. Dyspepsia, catarrh of the stomach, and many other digestive disorders are caused by tobacco. The more expensive the tobacco, the more dyspepsia is set up. Smoking blackens the teeth, and causes tartar to be readily deposited on them. At first tobacco causes purging, but after a time it helps to set up constipation.

Cancer is often due to the use of a pipe ; it frequently arises where the pipe rubs, and if a person is liable to cancer then the irritation of the pipe may start it off. When this fell disease once comes it is difficult to cure. Most of the cases of cancer of the lower lip are found in smokers. Women rarely smoke and rarely suffer from cancer of the lip. Tobacco does not cause lung troubles, but when a cold is caught the smoker does not recover very quickly as a rule, whilst a cough is always made worse by it. When a person suffers from chronic disease of the lungs we find that tobacco increases the quantity of phlegm.

On the muscles its action is bad ; it causes weakness, tremblings, want of proper control over the muscles and helps on or causes paralysis of the legs. Athletes should never use it, nor should engravers, lithographers, or those who do fine work of any kind.

On the nervous system its action is well marked. It causes timidity, loss of energy, indecision, and want of will power. It causes nervousness, tremblings, blushing, bashfulness, flushing, vague foreboding, sleeplessness, lowness of spirits, irritability, twitchings of the muscles during sleep, cramp in various parts, and paralysis. In France it has been noted that the increased use of tobacco is followed by an increase in the number of insane persons. It causes or helps on blindness, loss of hearing, and of taste and smell. Specks before the eyes, ringing noises in the ears, and sudden attacks of giddiness are caused by it in some. It increases the perspiration. In the young it upsets digestion and nutrition, and stunts growth ; also causes

heart disease and impairs the memory and helps on many nervous disorders.

Smokers will suffer from some of the following symptoms : Loss of appetite, coated tongue, constipation, foul breath, restlessness, sleeplessness, nightmare, irritability, morbid fancies or ideas, paleness, sallowness, thinness, colic or cramp, weakness, tremblings, stomach troubles, disorders of sight, etc. Wounds in smokers do not heal so readily as in those who abstain from it.

The best way to stop this injurious habit is to give it up suddenly ; there will be great craving and a feeling as if something were lost for four or five days, then the natural man will predominate, and health and comfort be gradually restored.

WHY PEOPLE DRINK.

To have the best health, alcoholic liquors must not be taken. I shall write on this question from a purely medical and scientific aspect. I have nothing to do here with its moral aspect. My province is to see how alcoholic drinks physically affect the system. In most parts of the so-called civilised world the use of certain stimulating liquors is common. Most people use them (some more than others), and it is my wish to examine the why and the wherefore of this, and note the results. In the first place we must presume that people drink because they know that fermented drinks produce well-known effects on the system. If we analyse these liquors we find that they all contain a chemical compound, known as alcohol. It is the action of this compound that we must study. We must study its action on the body just as we would any other drug like opium, mercury, or prussic acid. It is a poison, and as such should be kept only in chemists' and doctors' shops, and should not be sold as freely as it now is, for anyone to buy who has the necessary money. Its common and almost unprohibited sale accounts for its frequent use, for we find that the more places there are for its sale the more is used of it. Food satisfies the craving called hunger, alcohol does not satisfy the craving called thirst, but tends even to make the thirst greater. One reason why some people drink is because they have a craving for it, which craving was born with them. Their parents were drunken, and they have given this craving of drink to their offspring. These drunken parents may have three or four children. One likes drink, another is an idiot, another has fits, and so on. Other people drink to satisfy an inward craving or an emptiness they feel. This emptiness is brought about by wrong kinds of food, which fill the stomach, but do not satisfy the wants of the system. Thus white bread

potatoes, meat, and other foods which only nourish in an imperfect way, create a desire for drink. Overfeeding in the same way produces a desire for alcoholic drinks ; these drinks act by paralysing the stomach nerves for a time, and so pain is not felt. Breathing bad and vitiated air sometimes produces a low feeling, to cure which stimulants are taken. Many drink to drown care, trouble, or sorrow, or even to lessen joy. They do not like to face worry of any kind, so they stupify themselves with drink, and put off the evil until a later day. Many drink from want of occupation. Thus, people with means which place them above the necessity of working, drink to fill up the spare time. Many drink because their occupation takes them amongst drink ; such as barmen, potmen, waiters, brewers' men, travellers for wine merchants, and nearly all men connected with the drink trade. They are in it and cannot well get out of it. Many drink from want of a comfortable home. Thus, a hard-working man comes home from work, and finds it in an untidy state, perhaps no food for him, no fire, etc. . He naturally goes to the public-house, where he finds congenial companions, and an obliging landlord as long as he has any money. In this class we must place the young men with fairly good educations, who go into large towns to earn a living. Office hours are over say, at 6 p.m., and having nothing much to do, they drop into hotels for a drink and a chat, or play billiards, and drink until the habit grows on them. They little know the chains they are fastening on themselves, or the physical evils, the seeds of which they are sowing. Some drink to try to keep warm, like cabmen, sailors, etc. Drink certainly gives a feeling of warmth, though it does not produce warmth, in reality it causes a lowering of the heat of the body. Some few drink to cure pain, to relieve indigestion, sickness, wind, or diarrhoea. Simpler remedies than intoxicants can be used without producing ill after effects, or setting up a desire for these drinks. If they are used in indigestion and flatulence, the result is a second condition, which is worse than the first. Some drink because they imagine that these liquors give strength to the system. Mothers who are suckling often drink with the intention of keeping up their strength and nourishing their children. Some drink, too, to get confidence, as many actors, public

speakers, and others ; whilst some drink to get sleep. They inform you that they cannot sleep unless they have something hot, commonly called a night-cap. What the results are I must leave for my next article.

THE RESULTS OF DRINKING.

In the article before this I gave the reasons why people drink. In this I shall show the results which follow the use of alcoholic drinks, whether they be taken as medicine or otherwise. The effects that are seen after alcohol is taken are due to the system trying to get rid of it. One of the first results is an increase in the number of the beats of the heart. The heart usually beats about 72 times a minute, but a moderate dose of alcohol will increase this up to 100 or 120. This quickening of the heart's action does not mean an increase of power, but quickened action and loss of power. The heart beats rapidly because it is forced to do so by the irritant action of the alcohol. Dr. B. W. Richardson has shown that one ounce of alcohol will make the heart beat 3000 times more than it would have done if no alcohol had been taken. This represents, in figures, a weight of three tons being lifted a foot high by the heart. An ounce of alcohol is contained in two glasses of beer, two glasses of wine, or a glass of spirits. Taking this as our basis of calculation, we can readily see how a single glass of beer taken daily for ten, twenty, or thirty years, must exert on injurious influence over the system. What must be said of those who drink many beers, wines, and spirits every day? My readers can now understand why I am continually advising persons to abstain from all intoxicants, for they waste life and lay the foundation of disease. I am also against their use in illness, because they lower vital activity, and instead of doing good, they do mischief, and make the chance of recovery smaller. Another result is dilatation of the small blood-vessels or capillaries of the skin. This causes a feeling of warmth, which is unreal, as the heat of the body is actually lessened. This dilatation explains the flushing of the face that some experience after a single glass of wine, and accounts for the red faces of those who are habitual tipplers. On the brain alcohol exerts an influence like chloroform and ether. That

is, it is an anæsthetic. It paralyses the brain centres which control the action of the muscles, as we may judge by the unsteady walk, trembling hand, difficulty of speech, and double vision which are experienced by persons under its influence. The reasoning faculties are also disordered. From this arises the proverb, "When wine is in, wit is out," for a man then reveals secrets he would otherwise keep to himself, and commits indiscretions which he would not do in his sober moments. The blood is also acted on injuriously by this agent. Alcohol prevents the red blood corpuscles from carrying a proper supply of oxygen to the tissues. The blood does not get thoroughly aërated, and so waste is retained in the system, which waste is the cause of many disorders, from simple pimples on the face and body to gall stones, &c. We see in persons who are regular drinkers a purple state of the lips and cheeks. If the blood were properly purified these parts would be red. One of the waste materials that alcohol causes to be retained in the system is fat, hence drinkers sometimes become stout, but this stoutness is disease, and not health. Alcohol, when applied to the skin, causes a hardening or thickening of it by producing congestion. This congestion is seen in all organs of the body where the alcohol reaches, as in the mouth and throat, in the stomach, liver, and kidneys. Its continual use, therefore, produces an inflamed state of these organs, and consequent diseases. Alcoholic drinks do not quench thirst, for after drinking, men are usually more thirsty than before. On the stomach alcohol exerts a mild irritant action, usually but erroneously called a stimulant one. It causes an increased flow of gastric juice for a time, but if taken daily it wears out the stomach cells, a poorer secretion of gastric juice results, and thus arise dyspepsia, flatulence, and other stomach troubles. The organs which get rid of alcohol from the system are the skin, lungs, liver, and kidneys. The skin sometimes gets rid of it by violent sweats. The lungs exhale it as we, may know by smelling the breath of any one who has been drinking. The kidneys get rid of it by letting it pass through them as rapidly as possible. The liver is also supposed to destroy some alcohol. But every organ it comes in contact with is injured, and if this goes on for some time, lasting disease is produced, and death.

THE DISEASES PRODUCED BY DRINK.

I must preface this article by again saying that alcohol is a poison like prussic acid, strychnia, arsenic, or phosphorus, and if taken daily for a long period of time produces grave diseases. In my last article I gave the results it produced—the wasting of life and force. Now I wish to show the diseases which follow the use of it. It has been computed by Dr. Norman Kerr and others that alcohol is the cause of 120,000 deaths yearly in this country, chiefly by the diseases it induces, as well as by deaths through accidents whilst the drinkers were under its influence. Alcohol gives rise to many diseases, some mild, some severe. The milder ones come on if only small quantities are taken, and these at irregular periods. If mild doses are taken daily, ill results follow in the long run. If large doses are taken daily, acute symptoms soon come on, while death may quickly follow the taking of raw spirits, even in moderate quantities, by one unaccustomed to their use. Among the mildest complaints produced by alcoholic drinks we may mention vomiting and sickness if more than a certain quantity is taken. Stomach complaints are very common amongst drinkers, such as flatulence and distension from decomposition of food in the stomach; whilst dyspepsia and indigestion are nearly always found to follow the use of alcohol, on account of the hardening and thickening influence on the stomach. A common complaint among drinkers is morning sickness, and no desire for food before mid-day. The more grave diseases of the stomach produced by alcohol are gastric ulcer, cirrhosis or thickening of the stomach, and lastly cancer. When alcohol is swallowed it passes over the throat, and in doing so irritates and inflames it, hence arises the drinker's sore throat. This inflammation spreads to the Eustachian tubes, and we get noises in the ears, and more or less deafness. After the stomach, the next organ to be affected is the liver. Here

congestion and hardening are produced. There is a hardened condition of the liver known as hob-nailed or gin-drinker's liver. Congestion of the liver gives rise to piles. The countenance becomes sallow in persons with obstructed and congested livers. The whites of the eyes become yellow, and jaundice may result. Gall stones are also produced as a secondary result. The kidneys are affected by this poison, and a very serious complaint brought on—that is chronic inflammation or Bright's disease. The kidneys become diseased, worn out, and death results from retention of waste in the system. The heart is weakened, the blood-vessels become hardened, and a fatal disease known as aneurism produced. This hardening of the arteries or blood-vessels is known as atheroma, and this state is usually found in persons who have a fit of apoplexy, or a stroke as it is commonly called. There are three kinds of dropsy produced by alcohol. Ascites, *i.e.*, dropsy of the belly or abdomen, from a hardened liver, and dropsy of the legs, which may arise from either weakness of the heart or from kidney disease. There is a kind of consumption produced by drink—it is known among doctors as fibroid phthisis. We find in connection with alcohol drinking many skin diseases—the commonest among which is some form of eczema. Acne rosacea or spots on the face, especially on the nose are brought about by it. Those on the nose are very properly called "grog blossoms." Ulcers of the legs and other parts rarely heal until even moderate drinking is given up. The brain and nervous system are soon affected, as seen in the shaky hand of the drinker. In time a continual trembling is produced, and is known as paralysis agitans. Sudden twitchings, cramps, indecision, and palsy are produced by it. If its use is continued, it produces hardening of the brain, then softening and insanity, and madness or loss of reason follows. In consequence of waste being retained in the system, gout and rheumatism are very prevalent among drinkers. One of our great London physicians—Sir Andrew Clark, I think—said that from 75 to 80 per cent. of the persons seen in hospital owed their presence there to drink. Persons who drink even moderately do not recover from wounds or surgical operations so well and quickly as do abstainers. In the Franco-German war it was found that persons who drank

even moderately rarely recovered from severe wounds. In epidemics of small-pox, cholera, typhus, &c., those who drink are always the first to be attacked and their ranks are soon thinned by these infectious diseases. If space permitted, I could show from statistics that all diseases are made worse by the use of alcohol, and life greatly shortened even by its moderate use. I hope those who have followed me so far will abstain from all intoxicants, then their chances of life are better, and they will be subject to less diseases than those who drink in moderation. Now my numerous readers and correspondents will understand why I am constantly advising them to abstain from liquor, because its action is bad—the amount of injury done depending on the amount of alcohol taken.



CURE FOR THE DRINK CRAVF

In my first article I gave the reasons why people drink; how some were impelled to it by inherited tendencies, some to supply a craving, and some to lessen grief, pain, joy, &c. To cure drunkenness, the whole tone of the system must be improved, and health raised to a proper standard. Bad or vitiated air must be avoided as much as possible ; and daily exercise must be taken, as this produces a healthy excitement and gives tone to the whole system. Bathing, especially cold or tepid bathing, is a great help, and should be practised when possible. Smoking must be stopped if a radical cure is desired, as it is found by the temperance people that smokers fall away from their ranks more commonly than non-smokers. The explanation is that tobacco causes thirst and a depression of the vital powers, and intoxicants are taken to give temporary relief. Want of occupation leads to drinking. It must be removed by work of some kind, and those who have no work must make some—it does not matter how trivial or useless it may be, so long as it passes time and occupies the mind. Food exercises very great influence on drinking. There are no drunkards amongst the vegetarians of this country. I have searched in vain for a vegetarian who drinks, and cannot find one, at least in this country. I have been told by many that when they gave up eating butcher's meat they lost all desire for stimulants. This may be a useful hint for temperance reformers, and the managers of "homes for the inebriate." The reason is that brown bread, macaroni, pnlse, grain, and fruit supply the system with everything that is necessary, and, not being stimulants like flesh foods, they do not give rise to a desire for further stimulants; or, it may be that, being easier of digestion than flesh foods, the stomach does not require a stimulant in the form of beer, wine, or spirits. Be the explanation what it may, there is the fact. Strong tea and coffee are also blamed for

giving rise to a desire for strong drinks, as they cause depression which is relieved by alcohol. Many young fellows start drinking because they have nowhere to go in the evening. I should advise these to join an athletic club or gymnasium. It will fill up their spare time and keep them out of mischief. Those who drink to get warm, will find more real warmth from a cup of hot cocoa or milk, or from a glass of hot lemonade, than from the strongest stimulants ; Arctic explorers find that those who use alcoholic drinks are the first to be overpowered and killed by the cold. There have been advertised many cures for the drink crave, such as the use of tincture, or decoction, or solution of quassia, gentian, various bitters, capsicum, cinchona, cuca, sulphate of iron, nux vomica, etc., but they are useless, as they only substitute one stimulant for another. The adoption of a proper dietary is most to be depended on. Many ask for a substitute for intoxicating drinks. There are many—some good and some bad. At dinner, lime or lemon juice and water is good, or fruit juices mixed with water. A drink that nursing mothers can take is thin gruel, cocoa, or milk. Herb drinks are not to be despised ; such drinks are nettle, dandelion and herb drinks, ginger beer, and some few others. Gooseberry, rhubarb, elderberry, currant, and other home-made wines, and perry made from ripe pears are very intoxicating.

I have now given my readers my objections to intoxicants, from a doctor's point of view, and it remains with themselves whether they follow them or not. My firm opinion is that all intoxicants are harmful, and they do harm according to their strength and the frequency with which they are taken.

APPENDIX.

GENERAL DIRECTIONS IN HEALTH AND DISEASE.

DIETETIC.—Have only three meals a day, about five hours apart; eat the food slowly, chew it well, and stop at the first feeling of satisfaction. Eat brown bread always, and not white. Do not drink more than one cup of fluid at a meal, and that luke-warm and not sweet. Cocoa is much to be preferred to tea or coffee, as it is less injurious to the system. The meals should be eaten deliberately, time allowed for them, and a little rest taken after them, if possible. Avoid fried, greasy foods, and such foods as suet, Norfolk and Yorkshire puddings.

No. 1.—Ordinary Diet.—Breakfast: 6 to 8 oz. brown bread and butter, cup of cocoa; or wheatmeal, oatmeal, hominy, or barley porridge eaten with brown bread and stewed fruit. Dinner: about four ounces lean beef or mutton, or of poultry, rabbit, or fish; two vegetables always; afterwards a little milk pudding, stewed fruit, or fruit pie. Tea: 6 to 8 ozs. brown bread and butter, boiled Spanish onion, boiled or raw celery, or other green stuff, or stewed fruit or milk pudding. Weak tea or cocoa to drink. No suppers, nor any food for at least three hours before going to bed, but a cup of cocoa may be taken if thirsty or faint. This diet is for ordinary people, who take the world as they find it, want to keep in fair health, and yet not to be deemed peculiar.

No. 2.—V. E. M. Diet.—Breakfast as No. 1. Dinner: thick vegetable soup eaten with brown bread, followed by a milk pudding and stewed fruit. Or a vegetarian pie, or the stew in No. 3 diet. Or simply two vegetables, brown bread and some vegetable sauce. As a second course, milk pudding and stewed fruit. Those who do not eat flesh, should sometimes eat peas, beans, or lentils. Tea same as No. 1. This diet is for vegetarians, for those who desire to get better health than the ordinary people, and for the delicate. It is especially useful in heart, liver, kidney, and chronic stomach complaints, in syphilis, and in gout and rheumatism. For the hypochondriacal it is the best diet I know.

No. 3.—Macaroni Diet.—For breakfast and tea about 4 ounces brown bread cut into dice, pour boiling milk over this, allow to cool, and then eat. Dinner: 2 to 4 ounces macaroni cooked and made into a pudding; eat with stewed prunes or other fruit. Next day have a stew made of seasonable vegetables, with rice, vermicelli, or pearl barley; boil thoroughly, mash them well, and flavour with

a little salt and pepper ; eat with brown bread. Finish up with stewed fruit and bread. This diet is useful in all chronic cases, and if kept to for some time clears the body of waste, and purifies the system.

No. 4.—Milk Diet.—Milk and barley bran or rice water in equal parts ; a teacupful may be taken cold every four hours. This diet is a quick cure for violent sickness or diarrhoea.

No. 5.—Fever Diet.—Milk and water, gruel, porridge, vegetable soup, milk puddings, toast water, whey, lemonade, bread and milk, fruit fresh and stewed, preserve water, &c. These are the foods that should be given in erysipelas, measles, scarlet fever, small-pox, typhoid or other fevers, and in acute attacks of sickness of all kinds.

HYGIENIC.—As much fresh air as possible must be always breathed. The sitting, workroom and bedroom windows should be open at least two inches in all weathers by day and by night in winter, and wide open in summer. The observance of this will prevent coughs, colds, sore throats, and chest complaints. Exercise : three hours a day is necessary for health ; those who work hard at an out-door occupation require no other, but sedentary persons should take two hours a day of some form of exercise ; if they walk, then eight miles a day is about the required amount. Bathing : a tepid or cold sponge down daily, and a fortnightly warm bath is good, or a weekly warm bath and a daily dry rub with a rough towel if the other cannot be carried out. A Turkish bath once a month is a good thing for some to have under advice. These rules should be adopted by all, as far as possible, and good health must result.

N.B.—Alcoholic drinks, as beer, wines, spirits, and liqueurs, are only mentioned to be condemned. Tobacco must never be used by those who wish to be well. All drugs and medicines, patent or otherwise, must be avoided.



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